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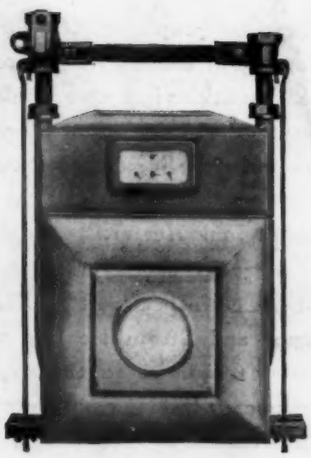
Lattimer-Stevens

No. 45 Meter Connection



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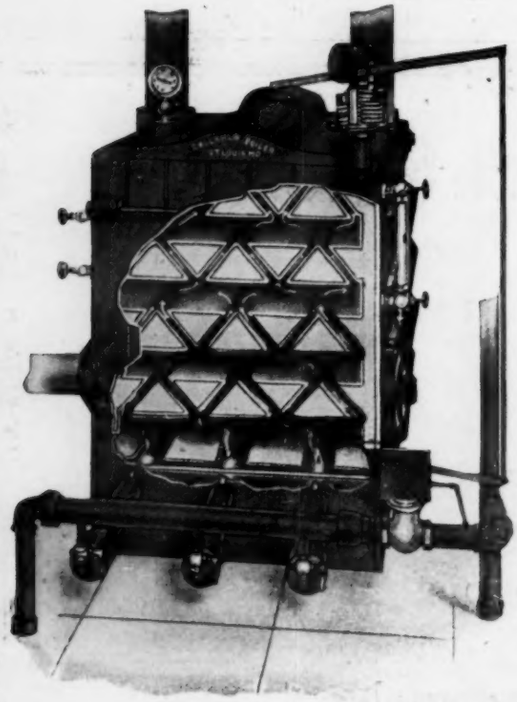
Other Gas Companies Are Doing It!



Send for our booklet and terms and learn how Gallaher Gas-Fired Boilers will increase both Volume Sendout and Profit.

TO educate the masses to the convenience, cleanliness, economy, wastelessness, safety and all the other virtues of house heating by gas, will take time and patience; but if the start is not made the goal will never be reached.

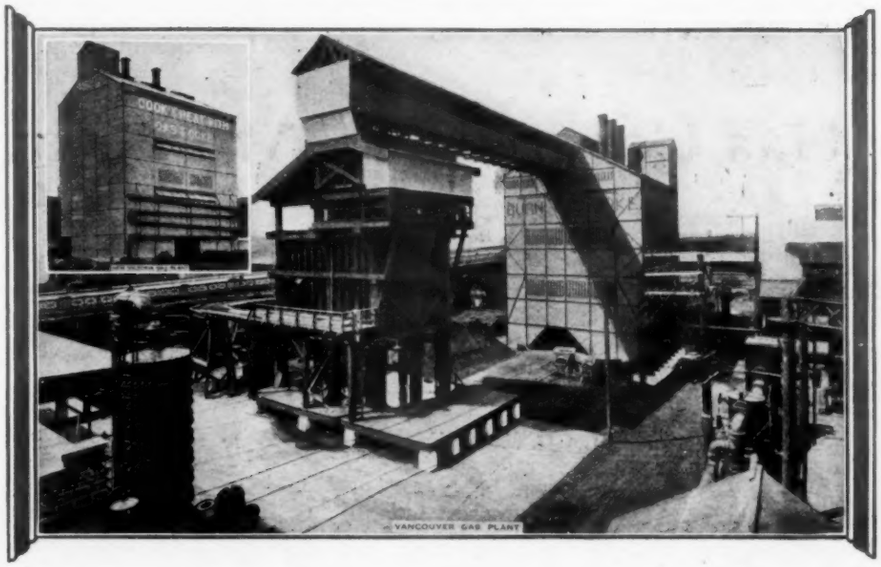
Yet there are some gas companies who have approached the house-heating-by-gas problem in an earnest, systematic manner; notably, The Laclede Gas Light Co. of St. Louis, who have surmounted all of the difficulties and whose efforts have been entirely successful.

The present time is most propitious for forcibly presenting the advantages of heating by gas, on account of the unsettled conditions in the coal industry with the possible shortage of this fuel next winter, and householders are therefore in a more receptive mood for improved gas appliances, such as the Gallaher Boiler and Storage Tank Heater.

GALLAHER GAS-FIRED TUBULAR BOILERS for Hot Water, Vapor and Steam Heating when shown, lower the sales resistance to this type of house heating and make easy the introduction of gas into a new realm of usefulness; to the satisfaction of the customer and profit of the gas company.

GALLAHER BOILER CO.

Laclede Gas Building, St. Louis, Mo.



GAS is supplied in the City of Vancouver by the Vancouver Gas Company, Limited, and in the City of Victoria by the Victoria Gas Company, Limited, both these companies being subsidiaries of the British Columbia Electric Railway Company, Limited. The Municipalities of Point Grey and South Vancouver, both adjoining Vancouver, have recently asked for gas service within their territories, and arrangements are now being made to extend the company's mains into those portions of these municipalities where the population is sufficiently dense to warrant the expenditure.

In consequence of the general use of electricity for lighting purposes, gas is sold exclusively for cooking and heating. There is a favorable outlook on the Pacific Coast for gas as a heating agent, and it is rapidly coming into demand for heating houses, offices and other large buildings.

In April, 1922, Glover-West Vertical Retort plants were erected in Vancouver and Victoria under the supervision of the West Gas Improvement Company, of New York. The Vancouver plant has a capacity of 1,000,000 cubic feet a day and the Victoria plant 600,000 cubic feet a day. These modern plants, the first of their kind on the Pacific Coast, can be operated with a minimum of employees, and for this and other reasons the cost of gas to the consumer compares very favorably with other Canadian and American cities.

	Total Mileage of Gas Mains Vancouver & Victoria	Gas Consumption Vancouver & Victoria	Total Consumers Vancouver & Victoria
1917	193.14	269,712,100 Cubic Feet	17,018
1918	193.95	314,533,300 " "	18,325
1919	194.75	381,717,800 " "	19,325
1920	197.48	481,986,000 " "	21,320
1921	202.84	543,168,100 " "	22,818
*1922	204.87	563,948,000 " "	23,338

* Reprinted from book recently issued by British Columbia Electric Railway Company.

Investigate the Glover-West System of Vertical Retorts

WEST GAS IMPROVEMENT CO.

of America, Inc.

150 Nassau St. New York

American Gas Journal

SIXTY FIFTH YEAR

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ISMAR GINSBERG, Technical Editor

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The Fuel of the Future What Shall It Be?

VIII. House heating—the systems used in house heating practice

Ismar Ginsberg

IN THE previous article the economic phase of the house heating problem was discussed in detail and it was shown how intimately connected were the scientific building of rate structures and the development of the house heating business. There can be no equivocation in this matter; the logic of it is plain to any one who wants to see it. There can be no real house heating business for the gas company until there is a demand rate charged for gas, so that the business can be properly regulated both to the advantage of the gas company and the consumer.

Two Aspects of House Heating Business

Now, our attention is directed to the technical, industrial and finally the physiological aspect of house heating. There are two ways of looking at the house heating business. It can be considered from the standpoint of the new house which is being built and which must have some heating system installed in it; and then again it must also be considered from the standpoint of the old house, already equipped with some heating installation which it is desirable to convert into a gas installation. More correctly stated, it is not really a problem of the installation as of the fuel that is used in the same. In fact, in the case of the old house, it must be tackled from that light. It would not do to advocate the tearing out of old coal burning installations to be substituted by a new, specially designed gas burning system. Not that it would not be better perhaps or that there may be some people to whom a few hundred dollars, more or less, spent on their heating system, would make no difference. But, as a general rule, it would probably be a very difficult matter to get the average citizen, sufficiently well-fixed to own his own home, to discard equipment which gives service—such as it is—and replace it with a new apparatus at comparatively high cost. In other words, the application of gas as a house heating fuel must be carried out to a large degree in the old furnace, no matter what it burned as fuel before or how it is constructed. This, however, does not mean that it is not admissible to ask the house owner to purchase a small additional device at moderate cost to enable him to get more efficiency out of the gas he burns.

The Technical Side of House Heating for the Gas Engineer

The first problem that the gas man then faces in house heating is the consideration of the heating systems as they are now constituted and the determination of the advantages and disadvantages of the same. In order to be able to understand how gas functions as a house heating fuel, it is necessary for the gas engineer to understand thoroughly the principles and practice of the science of heating and ventilation. He should know something about the various characteristics of the different house heating systems and their applicability for different purposes. He should know that some are better suited for heating homes, others for heating factories, for we are considering the question of house heating here in its broadest application, the heating of any structure, whether it be a home, a school house, a factory building or what not.

The gas engineer must know how to determine how many cubic feet of his fuel will be required to heat a house in comparison with other fuels. In order to do this it is necessary for him to know and understand the standard methods that are used in practice by heating and ventilating engineers in making calculations to determine the number of heat units required to keep a structure or a room at a desired temperature. In the following discussion we will not endeavor to delve too deeply into the science of heating and ventilating, for that is a distinct field of its own, but we shall give enough space to the de-

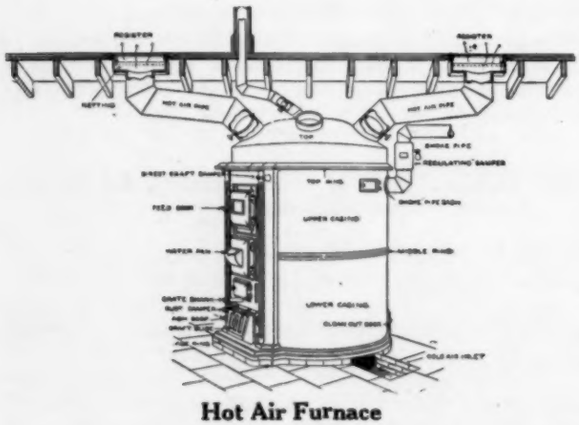
velopment of the fundamental principles and laws of heating and ventilating, so that the gas engineer may understand the operation of house heating installations and the particular service performed by gas in comparison with other fuels.

Systems Used in House Heating

There are various systems used in house heating. Some of these are direct and some are indirect. For our purpose it is essential that fundamentals of all these systems be thoroughly understood. The direct systems are four in number. The first and simplest of the systems is heating by hot air; then there is the system in which the heating is conducted by direct steam. The third system uses hot water and the fourth is known as the vacuum system, using low pressure steam. This system is also sometimes called the exhaust steam system.

The Hot Air System

From the standpoint of economy of installation and simplicity of design the hot air system stands at



Hot Air Furnace

the head of the list. It is next to the cheapest system of all which is heating by a stove right in the room. In the hot air system the furnace is so constructed that the heat is conveyed to air which is constantly passing through what is known as a heater, which is part of the furnace itself. The heated air, then, passes up pipes and is transmitted throughout the various rooms of the building. The hot air system of heating is well adapted for heating small houses, churches, halls and small-sized schoolhouses. The hot air furnace is easily cared for. It possesses the additional advantage in that, as long as there is a fire in it, a constant supply of heat is being derived from the furnace and conducted into the rooms. It also rapidly heats up the house, which is an advantage over the other heating systems in which the heat must first be absorbed by water, which is circulated through the pipes and radiators, either in the liquid or vapor form, before any heating of the house can ensue. This naturally consumes time.

Introduction of Fresh Air in Room

Perhaps the greatest advantage of the hot air system is the fact that by its use fresh air is constantly being brought into the room. The air is drawn from the outside, heated and distributed through the house, making a very efficient ventilating system. On the other hand, this very advantage entails another disadvantage. The hot air furnace will consume more fuel than the other systems, for the external air must be heated to the temperature of the warm room, which means a greater consumption of fuel because of the lower temperature of the air outside than that inside. The steam or hot water system must merely heat the temperature of the air in the room to the proper point, which means a lower consumption of heat because of the higher temperature of this air than the outside air.

The Humidity in the Air

A further important advantage of the hot air system is the ease with which the proper humidity can be maintained in the air of the heated house. The maintenance of a proper percentage of moisture in the warm air of houses during the winter time is a matter of the highest importance from the standpoint of the health of the people living in the house. This fact may not be appreciated as much as it should be, but within recent years medical men have been giving it their attention and now are fairly well agreed that the humidity of the air, when reduced below a proper point, has a very great physiological effect on the human body. This question is considered to be of such significance that special consideration will be given it later, so that gas men may know all phases of the house heating business.

It is a comparatively easy matter to keep the air moist in homes that are heated by the hot air system. A water box is provided in the hot air furnace and by keeping this full of water at all times the humidity in the warm air is constantly maintained at the correct point. The other heating systems cannot be controlled in this manner. In most instances very crude methods are used, such as placing a pan of water on the radiator. Generally nothing at all is done to moisten the air of the room, and a prolonged stay in a house heated in this manner is very soon noticed by those who are accustomed to hot air heating.

Direct Steam Heating

The most popular of all heating systems is probably the direct steam system. The first cost of the apparatus for a steam heating plant is much more than that of the hot air system, but less fuel is consumed in heating as cold air drawn from the outside need not be heated. Whenever this system of heating is used in large structures, hospitals, school buildings, theaters, etc., a special ventilating system must also be installed.

There are two general classes into which direct

steam heating installations can be divided: one, the gravity circulating system; two, the mechanical circulating system. In the first type the condensate from the radiators, in which the steam is condensed to water in yielding its heat units, runs back by gravity into the boiler. The system is a closed circuit and the steam pressure which exists in the mains, boiler and radiators is the same, except for the loss in pressure, which is due to the friction of the steam passing through the pipes, etc.

Mechanical Circulating System

In the second system the condensate does not run back to the boiler directly, but first passes into a feed water box from which it is pumped into the boiler by mechanical means. This is not a closed system and the pressure in the boiler may be much higher than in the steam pipes or radiators. There are different variations of both circulating systems, which need not be discussed here.

The principle of steam heating is based on the fact that it takes a considerable amount of heat to convert water into steam. In other words, the latent heat of vaporization of water is high. This heat is put into the steam and is released when the steam condenses in the radiator. The radiator merely radiates the heat that is released by the change of state from steam to water, the hot water returning directly to the boiler.

Properties of Direct Steam Heating Systems

The direct steam heating system possesses certain inherent advantages. It is a very flexible system and can be used to maintain warm temperatures in all or any of the rooms of a house, no matter how far from the furnace they are located or whether they are on the north or south side of the house. The pressure of steam in the boiler can easily be controlled and if it is insufficient to heat the coldest room of the house it is a simple matter to feed more fuel into the furnace and raise the steam pressure and consequently the temperature of the room.

In comparison with the hot water system it possesses the advantage of being free from the danger of freezing. When water is left unheated in rooms which are unused and hence not heated it is very apt to freeze in the pipes in the cold weather and cause considerable damage to the same.

On the other hand, an important disadvantage of the steam heating system is the difficulty of regulating the heat. The radiators are designed to maintain the room warm even in the coldest weather: hence, when the weather is mild, they give too much heat. The only simple remedy is to bank the fire. But in doing this, when coal is used as a fuel, a considerable loss of heat is entailed. This is one respect in which gas is much more efficient than coal as a house heating fuel. This matter will later receive further attention. Of coures, it is possible to install a temperature regulating system, but this is expensive and beyond the means of the average house owner.

The Direct Hot Water Heating System

Hot water heating systems, just like direct steam heating systems, may be divided into two general classes. In one gravity circulation is employed and in the other forced circulation. In the latter system a pump is placed on the return line just before it enters the boiler. The forced circulation hot water system is employed in large installations only or in central station heating service sytsems. There are different types of each system.

The principle of the hot water heating system is the radiation of the heat contained in hot water which circulates through the radiators in the various rooms of the house. It is very well adapted for heating rooms and buildings in which a constant temperature must be maintained. This system yields heat as long as the fire is burning in the furnace, in contradistinction to the direct steam heating system in which heat is obtained only when steam circulates through the radiators. This explains why the radiators cool off so quickly when the fire is banked in the furnace. While the water in the boiler may be hot, no steam is evolved and hence no heating is accomplished. In the hot water system a constant flow of heat is obtained as long as the water is hot. Heating ceases when the temperature of the water in the radiators reaches that of the atmosphere surrounding them. Banking the fire in a hot water system merely means reduction in the amount of heat delivered to the water and hence a corresponding reduction in the amount of heat radiated from the radiator.

On the other hand, the hot water system possesses the disadvantage of high first cost. The furnace is more costly, more care has to be taken in the way in which the installation is made, and the radiators are larger. An interesting table, showing the relative costs of the hot air, hot water and steam heating systems, is given below. (This table was taken from Heating and Ventilation, by Charles L. Hubbard). It gives not only the original cost of the installation, but the repairs and fuel costs for periods of five and fifteen years:

Relative Cost of Heating Systems

	Hot air	Steam	Hot water
Relative cost of the apparatus	9	13	15
Relative cost, adding repairs and fuel for five years.....	29.5	29.75	27
Relative cost, adding repairs and fuel for fifteen years....	81	63	52.5

According to this table, while the hot water system is most expensive to install at the outset, because of the lower consumption of coal and the lesser amount of repairs required to keep the apparatus in good working order, at the end of an extended period of years its total cost over that time is less than either the hot air or the steam heating systems.

(Continued on page 194)

Gas Men Must Have Confidence in Their Industry*

The activities of the A. G. A. for the benefit of the gas industry are described

Alexander Forward

Secretary-Manager, American Gas Association

THIS opportunity to address you is particularly welcome because of the many complimentary things I have heard about your organization, and because I have long understood that New England is a veritable stronghold of the manufactured gas industry and that it is so by reason of the strong, active, aggressive personnel in control.

I thank you, Mr. President, for your kind introduction. Such encouragement is needed by one who takes up the work so splendidly organized and so successfully prosecuted by my distinguished predecessor, Colonel Fogg.

Coming recently from beyond the actual borders of the gas industry, with an acquired rudimentary knowledge of the business from the standpoint of the regulatory commission, it is most interesting to me to have the viewpoint from within and to measure the problems that you have had to meet for years. I can hope only, therefore, to bring you the outlook of one who has not had, as you have, the daily, intimate contact with the details of the industry, yet has been an observer for years of what you have done. Perhaps you would like to have my reaction to the situation as I find it.

Future of Gas Business Assured

In the outset I hesitate not one moment to express an unbounded faith in the future of the gas business. That faith is founded in many things. One of them is the vital place we hold among the civilizing influences of our time. The world cannot do without us, and will never be able to do without us. Another is that science is surely and unerringly pointing the way to further spheres of usefulness in the service of the public. Another is the evidence of growing success and of triumph over difficulties that are made manifest every hour in the flow of business through the headquarters of the American Gas Association.

Above all, the guarantee is written in the faces of the men engaged in the gas business. The observer has little difficulty in distinguishing clearly between those on the one hand who do their daily tasks, no matter how well, but have no hope of better and bigger things in their work tomorrow than today, and those on the other hand whose countenances carry the keen intelligence, the vibrant hope, the confidence in greater and more serviceable things tomorrow, like those I see in this hall.

*Delivered at the annual meeting of the N. E. A. of Gas Engineers, Boston, Mass., February 13 and 14, 1924.

The Work of the Home Service Committee

The Home Service Committee is endeavoring to interest every gas company in this important phase of public relations and sales building. The variety of work which Home Service Departments can do is almost beyond comprehension. The contact thus established with the public, the good-will engendered and the almost direct result of increased sales has been most apparent in those situations where the companies have gone into this phase of activity on an extensive scale.

The Relations With Customers

I want to touch just briefly on the work of the Accounting Section Committee on Relations with Customers. No subject is more fundamentally important to a utility than the establishment of policies of service which will result in the continued good will of their customers. But that such a policy, no matter how robust in conception, may lose much in the way of force and form in its transmission through many hands, is no less true than that the pressure in outlying sections of a distribution system will in time become inadequate if proper measures for boosting the pressure are not taken. It was with this latter consideration that the Accounting Committee on Relations with Customers was concerned. To make an intimate study of the various departmetns whose employees must carry the company's service policies through to the points of contact with the cutsomers; and to see how the personnel, routines and functioning of these departments might be better co-ordinated and stimulated from the standpoint of the consumers' service.

The Matter of Insurance

Most of you are undoubtedly familiar with the work of the Insurance Committee which resulted in the adoption of the new rating schedule for gas plants. Many companies have reported savings in premiums under the new schedule, but at this time I want to stress the importance of the new explosion clause which may now be attached to policies covering gas plants.

Under this clause the ignition of gas resulting in an explosion is regarded as a fire and the resultant damages should be treated as a fire loss and reimbursement obtained from the insurance companies.

The clause permitted under the new schedule of the Central Traction and Lighting Bureau has not been adopted universally throughout the country, but it is believed that every company may obtain this

clause or a modification of it according to their local laws.

Members should appreciate the importance of having some form of this explosion clause made a part of their policies and their brokers or agents should be requested to endorse it thereon. Our committee is at present working on a standardization of such clauses throughout the country, and it is suggested that it would be well as a preliminary to action on the explosion clause to get in touch with the chairman of the A. G. A. Insurance Committee, Mr. J. G. Reese, care the Consolidated Gas, Electric Light and Power Company, Baltimore, Md.

Work of Technical Section

Considerable progress is being made by the Technical Section in the establishment of fundamental principles underlying the measurement of gas in large volumes in all types of meters. This section expects to have a report on the testing of large volume meters to present at the 1924 convention. It has the co-operation of the United States Bureau of Standards in this work.

The Coke Committee of the Technical Section is issuing a bulletin periodically on the preparation and sale of coke for the benefit of gas managers.

Industrial Gas

The Industrial Gas Section is devoting its efforts principally to the preparation and publication of booklets covering the use of gas for industrial purposes. The material for seven of these booklets is in the hands of an editor who is devoting his entire time in getting this material into shape for publication. Material for six additional booklets is being collected.

Gas Men Must Have Confidence in Their Industry

If there is any criticism of the gas industry that could be justly made by one who has served it in what might be called the capacity of a referee, I should say that it lies in the lack of confidence sometimes demonstrated in the future of the industry. I believe there could fairly be very little complaint on that score now and none here in New England. I do not see how any one could lack that faith. But, however that may be, there are certain factors to be cultivated. The gas industry needs undoubtedly all the proper, educative, dignified publicity it can get, not of the brass band sort that makes a big noise and quits, but of the intelligent, constant, unending, constructive sort. Above all, it needs, and I rejoice that it already has in large numbers, for I know them, men with confidence so strong in the future that it inspires their fellow workers, our growing army of security holders and the consuming public, men who are proceeding steadily in the conviction that gas service efficiently rendered at equitable rates is the solution to the fuel problem, that the gas business is a necessary corollary of civilization and an indispensable public service, without a substitute in sight or in the offing.

Naturally, the activities of the American Gas Association are the barometer of what is going on in the gas industry. The four hundred gas men, representing all branches of this vast business, each holding a responsible position in his own company, carrying on the association's work without compensation and for love of the game, can accomplish anything they set out to do. Think of the enormous tasks involved in educating the public and its representatives to abandonment of the now obsolete calorific content requirements, and, in conjunction with other organized utilities, to discontinuance of fixed term franchises and the substitution therefor of indeterminate permits. Yet these things will be brought to pass.

There are other important spheres of endeavor just ahead. I conceive the association can best function by attempting after all careful consideration a few really big things rather than a multiplicity of small ones, and that it is vital to be sane, so that while we have our heads in the air we will keep our feet firmly on the ground.

A Business Creed

As I see it, an industry which can weather the storm of 108 years and at present is practically universally admitted to be on the threshold of an era of expansion unequalled by any in its history, certainly deserves the full-hearted confidence of every man or woman who is on its payrolls.

So I here state my business creed: I believe in the manufactured gas industry. I believe that, despite its age and the progress it has made, it has yet to enjoy its greatest period of usefulness. I believe in the character, integrity, resourcefulness and efficiency of those who are directing the affairs of the industry. And I believe that those who have loaned us billions of dollars to carry on our work stand ready to invest other billions if we at the helm will face the future with clear vision and indomitable faith and grasp the tremendous opportunities of this present day.

Could any one have a more inspiring professional creed or a more attractive work?

Uniform Classification of Accounts for Gas Corporations

The work that has been done and still remains to be done

H. W. Hartman

Secretary, Accounting Section

IN NOVEMBER, 1920, the convention of the National Association of Railway and Utilities Commissioners recommended that all state commissions adopt the Uniform Classification of Accounts for Gas Corporations that had been prepared by their committee on Statistics and Accounts in collaboration with similar committees of the N. E. L. A. and A. G. A. From that date, November, 1920, to February, 1924, fifteen state commissions have adopted the classification and required companies in their jurisdiction to keep their accounts in accordance therewith.

A Remarkable Achievement

Viewed in the light of the difficulties always attending any effort at national standardization of accounts, this is a remarkable achievement. But it is not the purpose of this article merely to congratulate ourselves on the achievement to date. The results obtained have been made possible through the untiring efforts of the A. G. A. Committee on Uniform Classificaion of Accounts in collaboration with local accountants and local gas associations and has entailed much work on the part of individual members of that committee in attending meetings of local committees, appearing before public service commissions, etc.

In the opinion of the members of the Managing Committee of the Accounting Section the extent and importance of this work has not been sufficiently brought to the attention of the association membership at large nor are local accountants in the states where the classification has not been adopted sufficiently conscious of the value of national standardization to be as active as they should to secure the adoption of the classification by their own commission.

Uniform Accounting Always an Ideal

Since the very inception of gas association work it has been a time-honored pursuit of the accountants to nationally unify classification of accounts. As a result of the earliest work on this subiejct, on Oct. 15, 1902, a committee of the American Gas Light Association presented at its thirtieth annual meeting in New York City, a uniform system of accounts for gas companies which was adopted and handsomely bound in leather for distribution to the members.

On January 1, 1907, the American Light and Traction Company published a Revised Classification of Financial Report for the McMillin Companies which was based on the former classification.

Work of American Gas Institute Along These Lines

When the American Gas Institute was formed the ideal of uniformity in accounting was still uppermost in the consideration of the accountants and managers of gas properties and on the recommendation of the Public Policy Committee, a committee was appointed to revise and compare the old uniform system of accounting adopted by the American Gas Light Association with all uniform systems of accounting in use by the several state commissions. This resulted in the adoption in September, 1914, of a uniform system of accounts for gas companies prepared by the above committee, which was submitted as harmonious with the systems adopted by the various utility commissions and which was adopted by the American Gas Institute and again distributed to the members.

Twenty Years of Work Represented

This twenty years' devotion to our ideal was not a matter of accidental selection. It arose from a sincere and universal conviction on the part of the industry that uniformity in accounting was not only practical but one of the most desirable consummations that could be brought about in public utility accounting. That it failed of any practical application up to the time of the formation of the American Gas Association was not due to any lack of conviction but to the lack of proper machinery for reconciling slight differences of opinion on details and for securing the united co-operation and agreement of the regulatory bodies in each state.

A. G. A. Action on Uniform Classification

It was with considerable trepidation, therefore, that the first Accounting Managing Committee considered what action should be taken on the adoption of a uniform classification of accounts. It was decided that in order to make this activity worth while some means should be provided for insuring the adoption and practical application of the classification, so authority was obtained from the executive board to confer with the president of the National Association of Railway and Utilities Commissioners. Ensuing conferences developed a plan that embraced concurrent work by committees of the N. E. L. A. and A. G. A., each formulating a classification best adapted for its needs and as compatible with composite utility commission classifications as possible. The N. E. L. A. and A. G. A. committees then reconciled their respective views so far as permitted by es-

sential differences in the two industries. Subsequently, joint conferences were held of the electric and gas committees with the commissioner's committee on Statistics and Accounts as a result of which a uniform classification was adopted which for the first time not only had the approval of adequate representation of the gas and electric companies, but was urged for adoption by the national association of the utility commissioners themselves.

Adoption of National Classification to Date

The above achievement was notable in itself and the foresight of the Managing Committee in co-operating with the National Association of Railway and Utilities Commissioners was justified by the first practical results obtained in twenty years of effort to secure national uniformity. Today the commisisons in the following fifteen states have adopted the national classification for gas companies in their jurisdiction: Alabama, Colorado, Connecticut, Georgia, Illinois, Indiana, Massachusetts, Michigan, Nevada, New York, North Dakota, Tennessee, Utah, Virginia, Wisconsin.

Extent of Progress Made

The extent of the progress made, however, is not fully apparent from a consideration of the number of states alone. It will be seen that the ideal of uniform accounting has been more than half realized when it is considered that:

The number of manufactured gas companies operating under the uniform classification in states where it has been adopted is 448 companies.

That holding companies have placed the classification in effect in their subsidiary companies in states where the classification has not yet been adopted to the extent of ten companies.

Total companies operating under classification, 458 companies.

Of the remaining 505 manufactured gas companies:

142 are operating in states where the commission has no jurisdiction.

96 are operating in Pennsylvania and Maine, which have adopted classifications substantially identical with the national classifications.

152 are operating in states where commissions are considering or intend to consider the classifications.

115 are operating in states where no consideration has yet been given to the classification.

1924 Plans A. G. A. Committee

The committee is confident that all that is required to insure the further adoption of the classification is to properly present the status of the situation to the local accountants so that some organized effort can be instituted for uniting the gas companies in each state in favor of adoption. The state and district gas associations of the A. G. A. are the proper channels for carrying on this work and the following assignment of territory to each association has been made for the purpose of organizing local action for the adoption of the classification:

Territory assigned where classification has not been adopted:

Indiana Gas Association—Kentucky.

Iowa District Gas Association—*Iowa, Montana, *Nebraska, *So Dakota, Wyoming.

Missouri Association of Public Utilities—Kansas, Missouri.

New England Association of Gas Engineers—New Hampshire, Rhode Island, Vermont.

New Jersey Gas Association—New Jersey, Delaware.

Pacific Coast Gas Association—California, Idaho, Oregon, Washington.

Pennsylvania Gas Association—Ohio.

Southern Gas Association—Maryland, W. Virginia, No. Carolina, So. Carolina, *Mississippi, *Florida.

Southwestern Public Service Association—*Texas, *New Mexico, Oklahoma, Arkansas, Louisiana.

Wisconsin Utilities Association—*Minnesota.

*Commission has no jurisdiction.

Interest of the Holding Companies

The holding companies have a large interest in the universal adopton of the classification as it is of distinct advantage to them to have their various subsidiaries wherever located operating under the same system of accounts. Two large companies have already arranged to put the uniform classification into effect in all their subsidiaries, even in states where the local commission has not taken action. Letters will be forwarded to all holding companies operating in states where the classification has not been adopted, urging that they have the local accountants in their subsidiary companies take an active part in the local action initiated on the classification.

Interpretation of Uniform Classification

While our members who are operating under the uniform classification are unanimous in stating that its advantages far outweigh the slight expense of changing from their former system the A. G. A. committee on uniform classification of accounts is prepared to answer any questions of the members regarding the classification and to make any necessary interpretations of specific accounts on points that may be raised.

If you have any questions as to interpretation in your territory, be sure to present them to the chairman of the committee, Mr. W. J. Meyers, who should be addressed care of the American Gas Association, 342 Madison avenue, New York, N. Y.

100 Per Cent Adoption by 1925

The above in general covers the plans of the A. G. A. committee for 1924. Their success will be insured if the local accountants get behind this movement with the enthusiasm which its importance to

(Continued on page 197)

FUEL OF FUTURE—WHAT SHALL IT BE?

(Continued from page 189)

Exhaust Steam Heating System

This system of heating a factory or office building is very popular in those establishments that generate their own electricity for light and power purposes. It affords an opportunity for using the exhaust steam to useful purpose by causing it to condense in a system of radiators rather than in a condenser, directly connected to the reciprocating engine or turbine. There are two ways in which this heating system can be carried out. A back pressure may be carried on the exhaust line from the engine, so that the latter will have to work against a pressure of anywhere from two to five pounds, or else some form of a vacuum system is used which reduces the back pressure and increases the efficiency of the engine.

When this is done each section of the hot blast heater and each radiator is equipped with a vacuum trap or valve on the return end which allows the air and condensate to pass through, but no steam. It is important to pass the condensate through an oil separator before it is returned to the boilers, if it is to be used over again for the generation of steam. It is also good practice to pass the steam through an oil separator before it enters the radiators, for otherwise a coating foil will be formed upon the inner surfaces of the radiators, resulting in a reduction of efficiency.

The Indirect Heating Systems

There are various indirect heating systems, such as indirect steam, indirect hot water, etc. These systems are based on the principle of using the steam or hot water first to heat up air, which is then circulated through the room. The radiators are set underneath the floor, generally in the basement, and the warm air from these radiators is circulated through the registers. In regard to fuel consumption, the efficiency is the same as that of direct furnace heating by hot air, for in this case as well it is necessary to heat up cold air to the temperature of the room. The avoidance of long pipes or flues through which the hot air has to stream from the hot air furnace before it reaches the room, as is usual in the hot air heating system, forms one of the advantages of the indirect steam heating systems.

The indirect hot water heating system is used in the same manner as the indirect steam system and possesses about the same characteristics as the latter, the one difference being that hot water is employed as the heating medium in the place of steam.

Combined System

It is possible to combine direct with indirect heating in a single system, so that the rooms of the house where ventilation is desirable are heated by the indirect steam-hot air system, while those where just heat is required or that are far from the furnace, are heated directly by steam or hot water. In this system the radiators are the same as those of the direct type, but the construction is such that small flues are formed between the sections, so that air admitted from the outside and passing through an opening in the wall circulates upward through them and becomes heated before entering the room.

Forced Blast Heating System

The method of heating a room or building by the forced draft system is employed under conditions which demand good ventilation. It is particularly adapted to the heating of large buildings, factories, schools, theaters, halls, etc. There are three units to the system. The first is a heater through which steam, hot water or hot gas may be passed; the second, a fan or blower to circulate the air over the heater surfaces; the third, a system of ducts or pipes to convey the heated air from the point of heating to where it is to be employed in heating.

There are found to be a number of important advantages in this system over those that operate by direct radiation. In the first place, the blast system affords a good ventilating means, producing a healthful atmosphere in the rooms heated by it. In the second place, it is comparatively simple to control the humidity of the air by making the warm air pass through a humidifying device. Then again a much smaller amount of radiating surface is required to perform equal heating duty. This means a reduction in the number of steam-tight joints, unions and valves to be kept in repair.

Advantages of System

As leakage of air in a building is mostly outward, it will generally be freer from drafts and hence more uniformly heated. In an ordinary heating system, where the air is merely recirculated within the room, being heated by a radiator in one corner of the same, uniform heating and freedom from drafts cannot be gained. For the air has not sufficient pressure to prevent the infiltration of cold air from outside into the room through the windows and door cracks. The statement is often made that the leakage of air is always outward from a heated room, but this is not so, and even if it were so, it could not prevent the entrance of cold air from the outside into the room.

The hot blast system is more easy to regulate than the other systems. It readily responds to changing outside temperatures. Finally the air entering the building and sent through the system may in the summer time be conveniently cooled by circulating cold water through the heater coils or brine previously cooled by mechanical refrigeration.

In concluding the description of the systems of heating used in houses and buildings, the central station heating system must be mentioned. A central heating plant generates the heat and distributes it, either in the form of steam or hot water, by pipes to its different cutsomers.

GAS MERCHANDISING

Domestic – Industrial

Selling Merchandise in Off Seasons

A few ideas for increasing sales when times are dull

J. B. Dillon

EVERY business has its rush season and its slump season. It is the slump season we will discuss now, for, write or argue as we may, we cannot dispute that the sale of gas ranges does, at times, somewhat drop off, for example, during the cold season, and the cold season is with us now.

What are we going to do about it?

Fill the gap with a side line!

Which one, or how many?

The usual and best answer to that question is, that local conditions should answer it, but we will venture a suggestion.

Selection of Side Lines

Isn't there some article you have had an occasional call for, that you do not handle; articles that in no way compete with your main line of goods? Right there is one line, because if you have it you can show it in your window and you can advertise it, and you should do both.

Isn't there seasonal articles which, if you carried, you would at least cover expenses, thus bringing more customers into your store, which would mean added chances for selling the main line of goods?

Ideas from Advertisements

If you do not read the advertisements in your trade journal and those in the national magazines, start now and you will get many ideas.

Then, again, there are some manufacturers who will finance the marketing of a product, paying you a commission on all sales, because you would then be their sales agent; yet you cannot hope to locate such aids to more money unless you read the advertisements.

Oh, yes, but the other stores will do the same thing; what chance have I?

There is no one dealer who has a monopoly on commonly used articles unless he is the sole agent, and even then he may be willing, like the manufacturer, to let you have them as a branch dealer.

Public Opinion Counts

Here is another thing that may be in your favor with your side line. Perhaps some of the other dealers are not well liked.

Does that make any difference?

I will let Colonel R. W. Stewart, chairman of the Standard Oil Company of Indiana, answer that question. He says:

"I have always believed that one of the biggest jobs of the head of a business is to undertake definitely to deserve favorable public opinion, and then go out and win it.

"This is not a job that applies only to the very big corporations, like ours, with assets of hundreds of millions of dollars. It also applies to the smaller corporations.

"If you don't have the public with you, a seriously large part of it is likely to be against you, and no business can continue to exist successfully unless a large part of the public is for it."

Proof That Public Opinion Counts

The writer at one time used to eat at a restaurant where the proprietor always attended the front counter or cash register, when he was not confined to his bed. The man was a sufferer from kidney trouble; yet, regardless of his affliction, or whether your bill called for five cents or five dollars, he always bowed his appreciation, smiled and said: "Thank you, please call again."

He died a few years after this business was opened, leaving his widow the business and $50,000 cash. He had good goods, good service and a good manner of doing business, hence the public liked him and proved it through its patronage.

The public is of the same mind today.

A Good Idea

Picking up a small piece of paper, I saw that it was a torn sales slip, the article purchased costing twenty cents. On the reverse side the slip read:

WE KNOW

That a satisfied customer is the best advertisement, and consequently do our utmost to please our trade. Should you find any mistake or have cause for complaint, we are at all times willing to rectify same and adjust all difficulties to the satisfaction of our customer.

The extra printing costs but little, yet there is no way for any of us to estimate just how many repeat orders such a little sermonette may bring. So grab it; it isn't copyrighted.

Opportune Moments

Be sure always to have the gas supply connected to your ranges and water heaters. Possibly some of your customers may be apartment house tenants, and are displeased with the janitor because he does not keep the hot water supply in such shape to make the bath enjoyable.

You know folks like to tell their troubles, and such things are blurted out, and that is the opportune moment.

"Have you an individual bath room?"

"Yes."

"Why not let us place one of our instantaneous water heaters? The cost is reasonable, and you can get hot water within a few moments regardless of the fact that the outside temperature is below zero."

"I can hardly believe that!"

"Step right over here." Draw off a glass of water and hand it to the customer and then let the water run, proving that it is getting cooler every moment until it gets to the lowest temperature obtainable there. This will convince the person that there is no trick.

Now shut off the water and with one match applied to the gas, tell the customer to hold his hand under the cock—again turning on the water—and if he was sincere in his criticism of the janitor and desirous of a comfortable bath, you will make a sale.

A few words in praise of your gas ranges and gas utensils will generally not be out of place, for the customer may sooner or later move to a house of his own and will remember you and what you did for him, assured him you could do, and he will return to make a purchase and help along your cash register. In addition such people are the real satisfied customers.

The Sale of the Combination Range

While I stated that the sale of the gas range does, sometimes, drop off during cold weather, I did not say that the sale of combination ranges should, or would, but unless we explain the merits of this wonderful device the sales for it may be minimized.

Quite true, the first cost is a little higher as compared with the gas range proper, or any ordinary coal range, but remember the price covers two ranges in one, and when we explain that and the merits of this combination, the price will then appear more favorable.

A Talk on the Combination Range

"Yes, ma'am, you have the advantage of the coal stove for the cold weather to cook, heat and warm your kitchen. Now when the warm weather comes you have a gas range without any charge whatsoever, other than to use the gas portion of this range. A gas range, you know, heats a room but little, as compared with other cooking utensils, and you never have to worry with kindling, coal or ashes. The heat from a gas range is so uniform that you can always depend upon the best effects either in frying, broiling or baking. The cost of gas is in many cases much cheaper than coal, for you are not forced to maintain a constant fire; one match gives you ample heat and that instantaneously. The gas can be shut off any moment.

"With this combination range, we will suppose that your fire in the coal portion died while you were away, and now you want a meal in a hurry. Light a match and you have it. While this is being done you can, if you like, start the coal fire for heating purposes, and yet lose no time in getting the meal.

"This combination may be shifted for years, the life of the article being a long one. Because of all of these features, it is my candid belief that it will prove to be the best liked household article procurable."

Some Sales Ideas

Place one of your combination ranges in the window. Lay a match alongside the gas portion, a card sign:

JUST ONE MATCH

And you will have a hot cup of coffee, ham and —, hot cakes or a big hot breakfast, the flame ready the moment you apply the match to the gas portion of this range.

While you are heating a nice hot breakfast cooked from the gas flame, you can, if you like, be getting a big warm coal fire in the coal portion of this same range.

Was there ever anything more sensibly arranged for your comfort? We haven't heard of it!

Come in and let us demonstrate.

Our prices and terms are reasonable.

Card signs are read, whether placed in your window or used as small newspaper advertisements. They should be placed in both and in conspicuous places about your store room. A few suggestions follow:

THE HEATING OF THE HOME

Is more often done with hot air, water or steam. Why worry with a coal stove when your home is comfortably heated? Our Gas Range will supply all the heat necessary for cooking or baking,

and there is no kindling, coal or ashes to contend with.

HOT WATER

May not be served by the apartment house janitor, but our ——— heater will, within a few moments, serve it at the temperature desired, regardless of the outside temperature. The cost is reasonable and our terms will satisfy. These heaters take up but little space.

It will be a pleasure to demonstrate. Please come in.

THE FOUR SEASONS

Are amply cared for with our combination gas-coal range, even if your home is not heated with a furnace.

Let us demonstrate these useful utensils. The cost is nominal, the results pleasing and delightfully surprising.

The secret of success is to keep eternally after success. It may elude you at times, but you are no exception. All of us are passengers on the good ship Life, tossed about at times, then again riding serenely on the smooth sea. Those who give up hope and jump overboard, or feel like doing it, are the ones who gets things too easy or give up in despair when all that is required is to forget oneself and think about business.

Proper thinking and acting about business will keep us so fully occupied we will not have time to worry.

Worry kills! Work exhilarates!

Come on, let's get to work.

Minister's Wife Writes Winning Essay and Gets Gas Range

The surprisingly accurate knowledge of what it means to cook with gas and the ability to put this knowledge into words, evidenced by Mrs. W. L. Ball, wife of the pastor of the Baptist Church of Spartanburg, S. C., won a beautiful gas range for her in a recent contest. Her essay is worth printing. Here it is:

To realize fully the advantages of gas over every other fuel for cooking, let one move to a vicinity where gas cannot be had. Once I had an experience of this kind. I substituted a new coal range and a blue flame four-burner oil cook stove. Then I engaged an expert cook from the city. She accepted the position gracefully until one evening, when a guest came late for supper. The fire was out in the coal range, so the oil stove was started up. About the time for supper to be served I had a hasty summons to the kitchen. There stood my cook in desperation. Her biscuits had been in the oven twenty minutes and hadn't begun to brown. She flew to the basement for kindling and in a rage started a fire in the coal range. That night supper was served one hour and a half late. The result was sodden, indigestible bread, a humiliated hostess, an uncomfortable guest, and the permanent leave of absence of my prize cook. This experience taught me several things:

Some Fundamental Principles

1. That a good meal served on time preserves harmony in the home.

2. That the time saved in preparing a meal on the gas stove more than compensates for any expense incurred.

3. That the meal is better cooked because the heat can be properly regulated. Improved digestions and dispositions naturally follow.

4. That cooks are easier to secure and to hold if they use a gas range.

5. Gas is so satisfactory that more women are learning to cook, thus avoiding the waste and expense of a servant.

6. Gas is the least dangerous of all methods of cooking and the surest method. Coal shortages, the inflammability of oil and the uncertainty of electricity makes gas the "old reliable."

7. A comparison in the prices of different methods of cooking convinces one that gas is cheapest.

8. Gas has the advantages of superior cleanliness. It cuts down the laundry bill and saves soap.

9. Gas is such a quick method of cooking that women find more time for self-improvement and recreation.

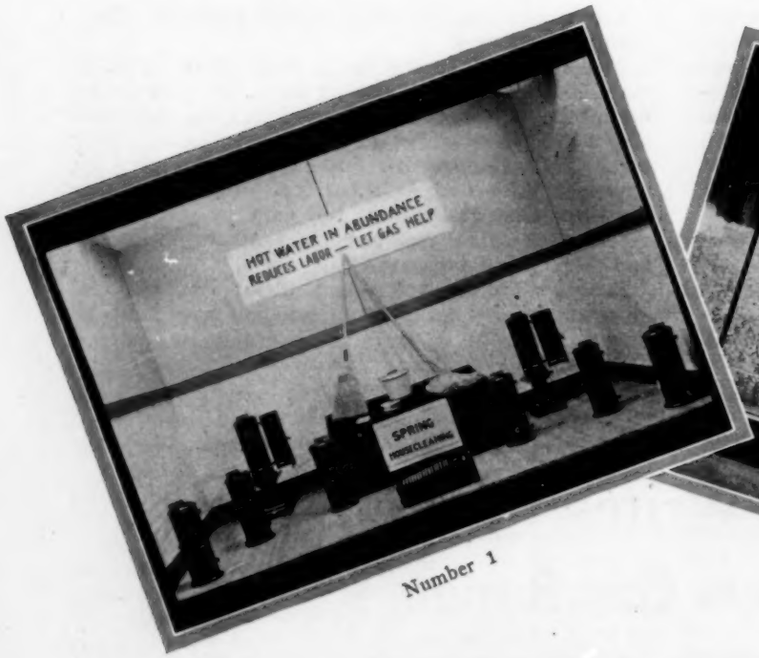
10. To the woman who does her own work, gas is a great labor saver, and in thus saving her time and labor and affording her opportunities heretofore undreamed of, it has proved a vertitable life-saver to many a woman.

UNIFORM CLASSIFICATION OF ACCOUNTS

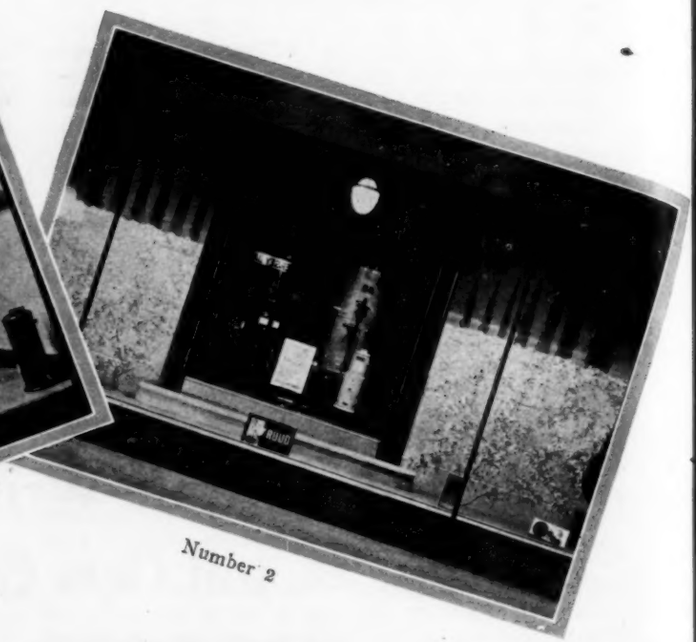
(Continued from page 193)

the whole industry deserves. Don't let it be said that your state stands in the way of the accomplishment which we have been striving for so long. Consult the directory of affiliated associations published in this issue and write the association in charge of your territory of your interest and willingness to help in the work. Write to association headquarters or to the Committee on Interpretation of Uniform Classification if there are any questions in your mind as to the operation of the classification. If we all get together we can secure 100 per cent adoption by 1925.

Striking Window Displays*



Number 1



Number 2

The window that sells is the window that has atmosphere rather than mere mechanics. The single hat strikingly displayed against a velvet background will appeal more to the feminine eye than a bushel of hats indiscriminately piled.

In number 2, a wide window has followed this idea. Atmospheric treatment draws the eye toward the center and marbled steps lead one straight up to the shrine—the hot water heater.

Number 3 shows a corner of a kitchen. It is not an expensive window, but catch Mrs. Housewife going down the street and passing this up. One of the greatest forces for inciting interest is a living character and a personable demonstrator will go far towards making windows profitable.

The Spring house cleaning window, number 1, is aimed to demonstrate the inner workings of the hot water heater—and hot water is an essential for any kind of house cleaning.

Number 3

*Courtesy of A. G. A.

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 9

Temperature Scale Conversion

The Change from One Scale of Temperature to the Other

It has been said that the Fahrenheit scale of temperature is used in all English-speaking countries, while the Centigrade scale is used in countries that have adopted the metric system of measurement. However, the Centigrade scale is also employed by scientific investigators and writers and very often the gas man obtains thermal data expressed in terms of degrees Centigrade. He must be able to translate his information into degrees Fahrenheit, before he is able to apply the same in a practical way. Then, again, for certain reasons he may want to convert degrees Fahrenheit into degrees Centigrade. In other words, he must know the mathematical relation that exists between these two temperature scales. It is unnecessary to consider the Reaumur scale, for it is seldom used.

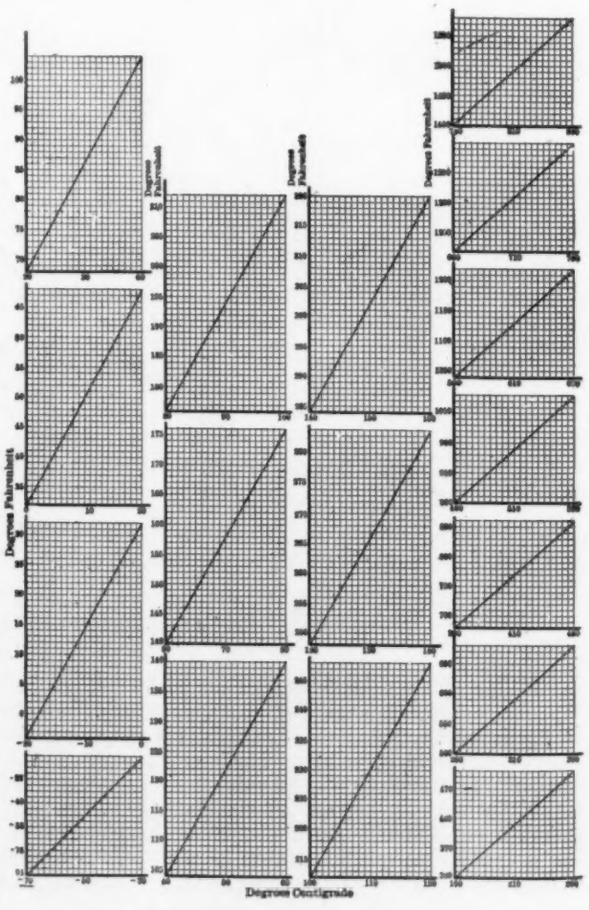
Mathematical Relations Between Temperature Scales

The relation that exists between the two is a simple one. In the first place, a degree Centigrade is one hundredth part of the distance or length of the mercury column between the boiling point and the freezing point of water. On the other hand, the degree Fahrenheit is one hundred and eightieth part of the same distance. Thus it is evident that the degree Centigrade is larger than the degree Fahrenheit, or, to put it mathematically, the degree Centigrade is equal to the degree Fahrenheit multiplied by the ratio 180/100, or nine fifths. Vice versa the degree Fahrenheit is smaller than the degree Centigrade and is equal to five-ninths of the latter.

The second difference between the two scales is that the Fahrenheit scale starts at 32, while the Centigrade scale starts at zero. Thus any reading on the Centigrade scale would be just 32 degrees less than the reading on the Fahrenheit scale if the degree were the same in both cases.

Thus, for example, 90 degrees Fahrenheit would be equivalent to 90 minus 32, or 58 degrees Centigrade and similarly 20 degrees Centigrade would correspond to 20 plus 32, or 52 degrees Fahrenheit.

But there is still another difference between the Fahrenheit and the Centrigrade scales and that is that one degree Fahrenheit is equal to five-ninths of a degree Centigrade, and vice versa, one degree Centigrade is equal to nine fifths of a degree Fahrenheit. This means that 90 degrees Fahrenheit is not equal to 58 degrees Centigrade, for the degree divisions have different values, but it is equal to five-ninths of this value, that is, five-ninths of 58, or 32.22 degrees Centigrade. Similarly, 20 degrees Centigrade is not equal to 52 degrees Fahrenheit, but to a larger value on this scale, found by multiplying 20 by nine-fifths and adding to the result 32, or 68 degrees Fahrenheit.



Temperature Conversion Curves

The Temperature Change Formulae

These relations are expressed in the following formulae:

Degrees Fahrenheit=32+9/5 (degrees Centigrade).
Degrees Centigrade=5/9 (degrees Fahrenheit—32).

Thus, for example, the boiling point of water is 100 degrees Centigrade; what is it in terms of degrees Fahrenheit? Substitute 100 in the first of the above formulae and we have the following:

Degrees Fahrenheit 32+9/5 (100) or 32+180, which is equal to 212 degrees Fahrenheit.

Then, again, the melting point of ice is 32 degrees Fahrenheit; what is it on the Centigrade scale? Substitute 32 in the second formula and we have:

Degrees Centigrade=5/9 (32—32), or zero degrees Centigrade.

While it is possible to find the equivalent of every temperature on one scale in terms of the other by means of these formulae, it has been found more convenient to use tables or curve sheets from which the equivalent temperatures can easily be read.

TEMPERATURES, FAHRENHEIT AND CENTIGRADE

F.	C.	F.	C.	F.	C.	F.	C.	F.	C.	F.	C.	F.	C.
−40	−40.	26	− 3.3	92	33.3	158	70.	224	106.7	290	143.3	356	180.0
−39	−39.4	27	− 2.8	93	33.9	159	70.6	225	107.2	291	143.9	370	187.8
−38	−38.9	28	− 2.2	94	34.4	160	71.1	226	107.8	292	144.4	380	193.3
−37	−38.3	29	− 1.7	95	35.	161	71.7	227	108.3	293	145.	390	198.9
−36	−37.8	30	− 1.1	96	35.6	162	72.2	228	108.9	294	145.6	400	204.4
−35	−37.2	31	− 0.6	97	36.1	163	72.8	229	109.4	295	146.1	410	210
−34	−36.7	32	0.	98	36.7	164	73.3	230	110.	296	146.7	420	215.6
−33	−36.1	33	+ 0.6	99	37.2	165	73.9	231	110.6	297	147.2	430	221.1
−32	−35.6	34	1.1	100	37.8	166	74.4	232	111.1	298	147.8	440	226.7
−31	−35.	35	1.7	101	38.3	167	75.	233	111.7	299	148.3	450	232.2
−30	−34.4	36	2.2	102	38.9	168	75.6	234	112.2	300	148.9	460	237.8
−29	−33.9	37	2.8	103	39.4	169	76.1	235	112.8	301	149.4	470	243.3
−28	−33.3	38	3.3	104	40.	170	76.7	236	113.3	302	150.	480	248.9
−27	−32.8	39	3.9	105	40.6	171	77.2	237	113.9	303	150.6	490	254.4
−26	−32.2	40	4.4	106	41.1	172	77.8	238	114.4	304	151.1	500	260
−25	−31.7	41	5.	107	41.7	173	78.3	239	115.	305	151.7	510	265.6
−24	−31.1	42	5.6	108	42.2	174	78.9	240	115.6	306	152.2	520	271.1
−23	−30.6	43	6.1	109	42.8	175	79.4	241	116.1	307	152.8	530	276.7
−22	−30.	44	6.7	110	43.3	176	80.	242	116.7	308	153.3	540	282.2
−21	−29.4	45	7.2	111	43.9	177	80.6	243	117.2	309	153.9	550	287.8
−20	−28.9	46	7.8	112	44.4	178	81.1	244	117.8	310	154.4	560	293.3
−19	−28.3	47	8.3	113	45.	179	81.7	245	118.3	311	155.	570	298.9
−18	−27.8	48	8.9	114	45.6	180	82.2	246	118.9	312	155.6	580	304.4
−17	−27.2	49	9.4	115	46.1	181	82.8	247	119.4	313	156.1	590	310
−16	−26.7	50	10.	116	46.7	182	83.3	248	120.	314	156.7	600	315.6
−15	−26.1	51	10.6	117	47.2	183	83.9	249	120.6	315	157.2	610	321.1
−14	−25.6	52	11.1	118	47.8	184	84.4	250	121.1	316	157.8	620	326.7
−13	−25.	53	11.7	119	48.3	185	85.	251	121.7	317	158.3	630	332.2
−12	−24.4	54	12.2	120	48.9	186	85.6	252	122.2	318	158.9	640	337.8
−11	−23.9	55	12.8	121	49.4	187	86.1	253	122.8	319	159.4	650	343.3
−10	−23.3	56	13.3	122	50.	188	86.7	254	123.3	320	160.	660	348.9
− 9	−22.8	57	13.9	123	50.6	189	87.2	255	123.9	321	160.6	670	354.4
− 8	−22.2	58	14.4	124	51.1	190	87.8	256	124.4	322	161.1	680	360
− 7	−21.7	59	15.	125	51.7	191	88.3	257	125.	323	161.7	690	365.6
− 6	−21.1	60	15.6	126	52.2	192	88.9	258	125.6	324	162.2	700	371.1
− 5	−20.6	61	16.1	127	52.8	193	89.4	259	126.1	325	162.8	710	376.7
− 4	−20.	62	16.7	128	53.3	194	90.	260	126.7	326	163.3	720	382.2
− 3	−19.4	63	17.2	129	53.9	195	90.6	261	127.2	327	163.9	730	387.8
− 2	−18.9	64	17.8	130	54.4	196	91.1	262	127.8	328	164.4	740	393.3
− 1	−18.3	65	18.3	131	55.	197	91.7	263	128.3	329	165.	750	398.9
0	−17.8	66	18.9	132	55.6	198	92.2	264	128.9	330	165.6	760	404.4
+ 1	−17.2	67	19.4	133	56.1	199	92.8	265	129.4	331	166.1	770	410.
2	−16.7	68	20.	134	56.7	200	93.3	266	130.	332	166.7	780	415.6
3	−16.1	69	20.6	135	57.2	201	93.9	267	130.6	333	167.2	790	421.1
4	−15.6	70	21.1	136	57.8	202	94.4	268	131.1	334	167.8	800	426.7
5	−15.	71	21.7	137	58.3	203	95.	269	131.7	335	168.3	810	432.2
6	−14.4	72	22.2	138	58.9	204	95.6	270	132.2	336	168.9	820	437.8
7	−13.9	73	22.8	139	59.4	205	96.1	271	132.8	337	169.4	830	443.3
8	−13.3	74	23.3	140	60.	206	96.7	272	133.3	338	170.	840	448.9
9	−12.8	75	23.9	141	60.6	207	97.2	273	133.9	339	170.6	850	454.4
10	−12.2	76	24.4	142	61.1	208	97.8	274	134.4	340	171.1	860	460.
11	−11.7	77	25.	143	61.7	209	98.3	275	135.	341	171.7	870	465.6
12	−11.1	78	25.6	144	62.2	210	98.9	276	135.6	342	172.2	880	471.1
13	−10.6	79	26.1	145	62.8	211	99.4	277	136.1	343	172.8	890	476.7
14	−10.	80	26.7	146	63.3	212	100.	278	136.7	344	173.3	900	482.2
15	− 9.4	81	27.2	147	63.9	213	100.6	279	137.2	345	173.9	910	487.8
16	− 8.9	82	27.8	148	64.4	214	101.1	280	137.8	346	174.4	920	493.3
17	− 8.3	83	28.3	149	65.	215	101.7	281	138.3	347	175.	930	498.9
18	− 7.8	84	28.9	150	65.6	216	102.2	282	138.9	348	175.6	940	504.4
19	− 7.2	85	29.4	151	66.1	217	102.8	283	139.4	349	176.1	950	510.
20	− 6.7	86	30.	152	66.7	218	103.3	284	140.	350	176.7	960	515.6
21	− 6.1	87	30.6	153	67.2	219	103.9	285	140.6	351	177.2	970	521.
22	− 5.6	88	31.1	154	67.8	220	104.4	286	141.1	352	177.8	980	526.7
23	− 5.	89	31.7	155	68.3	221	105.	287	141.7	353	178.3	990	532.2
24	− 4.4	90	32.2	156	68.9	222	105.6	288	142.2	354	178.9	1000	537.8
25	− 3.9	91	32.8	157	69.4	223	106.1	289	142.8	355	179.4	1010	543.3

TEMPERATURES, CENTIGRADE AND FAHRENHEIT

C.	F.	C.	F.	C.	F.	C.	F.	C.	F.	C.	F.	C.	F.
−40	−40.	26	78.8	92	197.6	158	316.4	224	435.2	290	554	950	1742
−39	−38.2	27	80.6	93	199.4	159	318.2	225	437.	300	572	960	1760
−38	−36.4	28	82.4	94	201.2	160	320.	226	438.8	310	590	970	1778
−37	−34.6	29	84.2	95	203.	161	321.8	227	440.6	320	608	980	1796
−36	−32.8	30	86.	96	204.8	162	323.6	228	442.4	330	626	990	1814
−35	−31.	31	87.8	97	206.6	163	325.4	229	444.2	340	644	1000	1832
−34	−29.2	32	89.6	98	208.4	164	327.2	230	446.	350	662	1010	1850
−33	−27.4	33	91.4	99	210.2	165	329.	231	447.8	360	680	1020	1868
−32	−25.6	34	93.2	100	212.	166	330.8	232	449.6	370	698	1030	1886
−31	−23.8	35	95.	101	213.8	167	332.6	233	451.4	380	716	1040	1904
−30	−22.	36	96.8	102	215.6	168	334.4	234	453.2	390	734	1050	1922
−29	−20.2	37	98.6	103	217.4	169	336.2	235	455.	400	752	1060	1940
−28	−18.4	38	100.4	104	219.2	170	338.	236	456.8	410	770	1070	1958
−27	−16.6	39	102.2	105	221.	171	339.8	237	458.6	420	788	1080	1976
−26	−14.8	40	104.	106	222.8	172	341.6	238	460.4	430	806	1090	1994
−25	−13.	41	105.8	107	224.6	173	343.4	239	462.2	440	824	1100	2012
−24	−11.2	42	107.6	108	226.4	174	345.2	240	464.	450	842	1110	2030
−23	− 9.4	43	109.4	109	228.2	175	347.	241	465.8	460	860	1120	2048
−22	− 7.6	44	111.2	110	230.	176	348.8	242	467.6	470	878	1130	2066
−21	− 5.8	45	113.	111	231.8	177	350.6	243	469.4	480	896	1140	2084
−20	− 4.	46	114.8	112	233.6	178	352.4	244	471.2	490	914	1150	2102
−19	− 2.2	47	116.6	113	235.4	179	354.2	245	473.	500	932	1160	2120
−18	− 0.4	48	118.4	114	237.2	180	356.	246	474.8	510	950	1170	2138
−17	+ 1.4	49	120.2	115	239.	181	357.8	247	476.6	520	968	1180	2156
−16	3.2	50	122.	116	240.8	182	359.6	248	478.4	530	986	1190	2174
−15	5.	51	123.8	117	242.6	183	361.4	249	480.2	540	1004	1200	2192
−14	6.8	52	125.6	118	244.4	184	363.2	250	482.	550	1022	1210	2210
−13	8.6	53	127.4	119	246.2	185	365.	251	483.8	560	1040	1220	2228
−12	10.4	54	129.2	120	248.	186	366.8	252	485.6	570	1058	1230	2246
−11	12.2	55	131.	121	249.8	187	368.6	253	487.4	580	1076	1240	2264
−10	14.	56	132.8	122	251.6	188	370.4	254	489.2	590	1094	1250	2282
− 9	15.8	57	134.6	123	253.4	189	372.2	255	491.	600	1112	1260	2300
− 8	17.6	58	136.4	124	255.2	190	374.	256	492.8	610	1130	1270	2318
− 7	19.4	59	138.2	125	257.	191	375.8	257	494.6	620	1148	1280	2336
− 6	21.2	60	140.	126	258.8	192	377.6	258	496.4	630	1166	1290	2354
− 5	23.	61	141.8	127	260.6	193	379.4	259	498.2	640	1184	1300	2372
− 4	24.8	62	143.6	128	262.4	194	381.2	260	500.	650	1202	1310	2390
− 3	26.6	63	145.4	129	264.2	195	383.	261	501.8	660	1220	1320	2408
− 2	28.4	64	147.2	130	266.	196	384.8	262	503.6	670	1238	1330	2426
− 1	30.2	65	149.	131	267.8	197	386.6	263	505.4	680	1256	1340	2444
0	32.	66	150.8	132	269.6	198	388.4	264	507.2	690	1274	1350	2462
+ 1	33.8	67	152.6	133	271.4	199	390.2	265	509.	700	1292	1360	2480
2	35.6	68	154.4	134	273.2	200	392.	266	510.8	710	1310	1370	2498
3	37.4	69	156.2	135	275.	201	393.8	267	512.6	720	1328	1380	2516
4	39.2	70	158.	136	276.8	202	395.6	268	514.4	730	1346	1390	2534
5	41.	71	159.8	137	278.6	203	397.4	269	516.2	740	1364	1400	2552
6	42.8	72	161.6	138	280.4	204	399.2	270	518.	750	1382	1410	2570
7	44.6	73	163.4	139	282.2	205	401.	271	519.8	760	1400	1420	2588
8	46.4	74	165.2	140	284.	206	402.8	272	521.6	770	1418	1430	2606
9	48.2	75	167.	141	285.8	207	404.6	273	523.4	780	1436	1440	2624
10	50.	76	168.8	142	287.6	208	406.4	274	525.2	790	1454	1450	2642
11	51.8	77	170.6	143	289.4	209	408.2	275	527.	800	1472	1460	2660
12	53.6	78	172.4	144	291.2	210	410.	276	528.8	810	1490	1470	2678
13	55.4	79	174.2	145	293.	211	411.8	277	530.6	820	1508	1480	2696
14	57.2	80	176.	146	294.8	212	413.6	278	532.4	830	1526	1490	2714
15	59.	81	177.8	147	296.6	213	415.4	279	534.2	840	1544	1500	2732
16	60.8	82	179.6	148	298.4	214	417.2	280	536.	850	1562	1510	2750
17	62.6	83	181.4	149	300.2	215	419.	281	537.8	860	1580	1520	2768
18	64.4	84	183.2	150	302.	216	420.8	282	539.6	870	1598	1530	2786
19	66.2	85	185.	151	303.8	217	422.6	283	541.4	880	1616	1540	2804
20	68.	86	186.8	152	305.6	218	424.4	284	543.2	890	1634	1550	2822
21	69.8	87	188.6	153	307.4	219	426.2	285	545.	900	1652	1560	2912
22	71.6	88	190.4	154	309.2	220	428.	286	546.8	910	1670	1650	3002
23	73.4	89	192.2	155	311.	221	429.8	287	548.6	920	1688	1700	3092
24	75.2	90	194.	156	312.8	222	431.6	288	550.4	930	1706	1750	3182
25	77.	91	195.8	157	314.6	223	433.4	289	552.2	940	1724	1800	3272

Temperature Conversion Tables

OILS FROM CARBURETTED WATER GAS

In co-operation with the American Gas Association, the Department of the Interior, through the Bureau of Mines, is investigating the relation of properties of gas oils to the gum-forming properties of carburetted water gas. Serial 2537, just issued by the Bureau of Mines, deals with the effects of operating practice on the composition of the light oils from carburetted water gas. A general outline of the gummy meter problem was presented in Serial 2503.

Carburetted water gas is a mitxure roughly of 80 per cent water gas by volume and 20 per cent oil gas. The latter, though small in relative volume, supplies more than half of the heating value of the gas under the present-day standard.

In the course of these experiments three gas oils in present-day use were cracked under especially controlled conditions simulating those of the carburetted water gas industry, and the light oil in the resultant gas was studied. It was found that gum troubles in distributing systems are basicly dependent upon the composition of the light oil of the gas, and especially due to the heavier unsaturated hydrocarbons of the aromatic series.

Gas oils of different properties cracked under identical conditions give rise to different amounts of gum-forming constituents in the resulting gas. The temperature at which cracking is done has a marked influence on the amount of gum-forming constituents in the gas. These decrease sharply with increase of temperature within cracking limits.

Serial 2537, "Relation of operating practice to composition of light oil from carburetted water gas," by R. L. Brown, E. F. Pohlman and H. G. Berger, may be obtained from the Depatrment of the Interior, Bureau of Mines, Washington, D. C.

As The Journal Views It

THE MERCHANDISING STANDARD

It is unquestionable that one of the principle functions of a gas company is to merchandise gas appliances. The gas company must not only manufacture gas of a standard quality, not only must it give proper service so far as distribution of gas is concerned, but it must also see that the consumers are supplied with devices in which gas is utilized with the proper degree of efficiency. It must constantly be ready to introduce new labor-saving gas devices in the homes, so that the use of gas will always be associated with home comfort, convenience and economy.

The commercial department of the gas company is, therefore, of prime importance, both from the standpoint of the consumer and of the gas company itself, for in order to sell gas it is necessary first to sell appliances, and if these appliances give good service, it goes without saying that the consumption of gas will increase. If the sales of gas appliances become greater, then it is a mere corollary that gas sales will become correspondingly greater. Accordingly, too much attention cannot be paid to the merchandising phase of the gas business.

In the past, some gas companies have exhibited decided lack of effort in this direction. There has been no enthusiasm, no real attempt made to increase the sales of gas appliances. Whenever a customer came into an office and wanted to buy an appliance, of course, he was sold one, but no serious efforts were made to increase sales by regular campaigns, proper advertising in newspapers and journals, and by the aid of other media that are now commonly used in the promotion of sales.

However, while this condition may still exist in certain localities, it is by no means as prevalent as it used to be. Distinct efforts are being made on the part of both national and state associations to increase the sales of gas merchandise.

All this indicates that the gas industry is awakening to the fact that one of its principle functions is to sell gas appliances, to see that its customers are supplied with the proper kind of appliances, and to introduce new appliance developments and improvements, so that users of gas may be able at all times to secure convenience and efficiency from gas appliances.

But, there is one condition which makes it a very difficult matter for the manager of a commercial department of a gas company to determine what progress he is making in his department. This matter has been discussed numerous times in state and national association conventions, and last year, at the convention of the American Gas Association in Atlantic City, a report was made by a committee which attempted to set a standard on sales of gas per meter to determine the effectiveness of the work done by the commercial department of a gas company. It has been held that for certain reasons these standards were not applicable, and that others must be looked for. The search for a standard, therefore, on which to base and compare appliance sales from year to year, is still on. The commercial manager would welcome suggestions as to what this standard should be, and how it can be formulated.

What is there to tell him as to whether his efforts are producing the results that they should? Is it enough merely to say that the sales are increasing, or that his gas appliance business was better than last year? If they were better, how much better were they; just how good were the sales last year? In other words, the difficulty of the whole matter is that there is no standard of comparison that the commercial manager can use, and until such a standard is devised it will be difficult for anyone to say just how efficient the commercial department of a gas company is.

It is, therefore, suggested that those who have ideas on this subject work them up in the shape of an article for publication in The American Gas Journal. The Journal will be glad to give publicity to any and all articles that are submitted on this subject. It is an important matter, everybody will admit, and it is

possible that, by comparison of ideas, some definite results may be obtained. Gas men, and commercial managers in particular, are urged to give this matter serious attention, and they will certainly receive the utmost co-operation by The American Gas Journal in this connection.

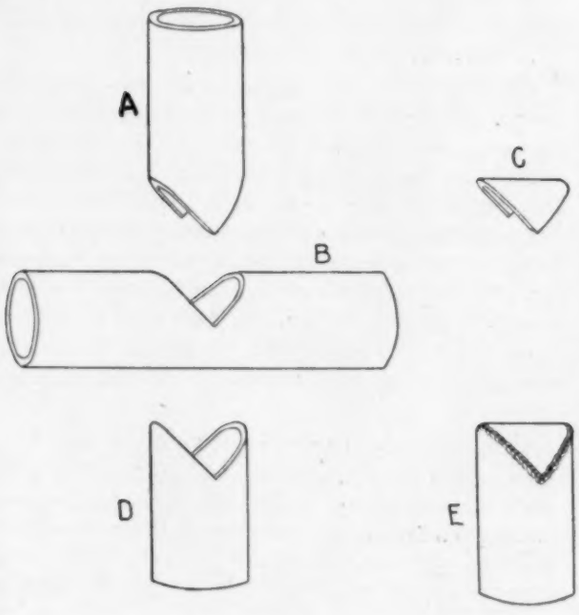
WATER GAS BY QUENCHING COKE

A battery of connected coke containers is provided, the temperature rising from one to the other until the hottest is at about that most suitable for the production of water gas, i. e., 1,000 deg. to 1,2000 deg. C. Steam or atomized water is led into the coolest container and the gas generated passed through each of the containers in turn, entering at the bottom and leaving at the top, until the hottest is reached, where complete conversion to water gas occurs. The gas then passes to a holder. Meanwhile, an empty container is filled with red-hot coke and introduced into the circuit, and by means of suitable piping, valves, etc., the water or steam is led into the second container, the first being cut out for emptying and recharging. The change over must always be made when the temperature of the hottest container falls below 1,000 deg. C., as otherwise the gas contains high proportions of carbon dioxide. The containers are preferably made cylindrical with vertical axis and are mounted together on a carriage so that they can be moved along underneath the retorts. The process can be worked with only two containers. One is charged and steam or atomized water led through until the temperature falls to 1,000 deg. C. Meanwhile the second is charged and the water turned on to it, while the first is discharged and recharged. By suitably gearing the valve controls together, the steam can be turned from one container into the other, and the exit gas pipe connected to the gas holder in one operation.—(German Patent No. 369,315.)

GAS WRINKLES

Method of Closing the End of Large Size Steel Pipe

Standard Oil Company Pipe Line Division, Los Angeles, Cal.



A clever and very practical way of closing the end of large size steel pipe with oxy-acetylene torch has been employed for some time in oil field and refinery work.

Referring to the accompanying drawing, it will be noted that when making a tee out of steel pipe with the oxy-acetylene torch, the end of the branch line "A" is cut off by two planes at 90 deg. to each other and the opening cut in the side of the main pipe "B" to take the branch line "A" is also formed by two planes at right angles to each other, cutting the pipe to the center. The piece "C" cut out of "B" will be a curved plate, the projection of which will be a perfect circle.

In closing the end of a pipe by this method the template used to cut the end of the branch line "A," in making a tee, is reversed, with the result that we have a notch cut in the end of the pipe, as shown at "D" and it will be found that the piece "C" will fit perfectly over and close this notched end, and when welded in place, as shown at "E," makes an end which is as strong as the sides of the pipe itself.

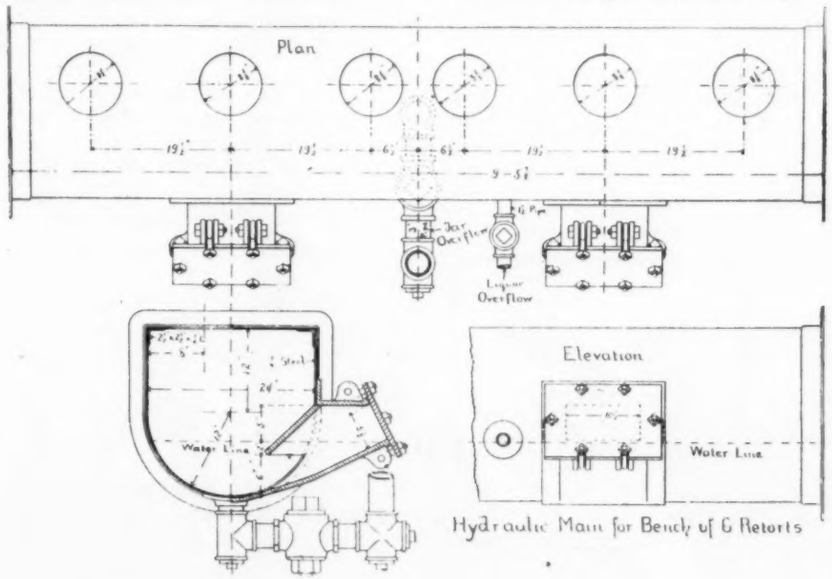
Pieces like "C" are either cut from scrap pipe or saved from openings cut when making tees.

Catechism of Central Station Gas Engineering in the United States

Installment No. 9

(Continued from last week)

In setting a piece of plate glass in the outer horizontal outlet of the cross, into the bottom outlet of which is screwed the adjustable pipe, a means is afforded of observing the depth of the seal at all times.



No gas take-off is shown. A short extension piece bolted on either end of the main, as may be most convenient, is provided for this.

How Dimensions of Main Are Determined

The reasons by which the general dimensions of the main are determined are as follows: The overall length of each section must be just enough less than the distance between the middle lines of the partition walls of the bench, to allow for the thickness of the gasket required between two sections. The distance between the middle lines of walls being 9 ft. 6 in. in the given case, the main is taken as 9 ft. 5⅞ in. long. The width is determined by the area of liquor which it is required to have outside the dip pipes, and this depends upon the following considerations. It is necessary that the dip pipes should remain sealed when the retorts are open, and the surface of the liquor in the dip pipes is subjected to atmospheric pressure, even when the pressure in the main is at the highest point it is likely to attain under the conditions existing in any given works. The unsealing of the dip pipes, when the water is at the proper level, can only be brought about by the forcing up into them of a volume of water equal to the area of the liquor in the main outside of the pipes, multiplied by the distance from the normal surface of the liquor to the lower edges of the dip pipes, that is, of a volume equal to the surface area of the liquor multiplied by the normal depth of seal. The depth of seal is usually taken as 1 in., and it is considered that the highest pressure that will have to be provided for will be 8 in. to 9 in. The width required in the given case is therefore found by this calculation. Six dip pipes, having an internal diameter of 7 in. and an external diameter of 8¼ in., will have a combined internal area of 291 square inches, and a combined external area of 321 square inches. There being liquor to the depth of 1 in. in the dip pipe under normal conditions, if the area of the main outside of the dip pipes is seven and a half times the total internal area, a pressure of 8.5 in. will be provided for. The area outside of the dip pipes must therefore be at least $7.5 \times 291 = 2183$ square inches, and the total area of the surface of the liquor should be $2183 + 321 = 2504$ square inches. As the length of the main is 9 ft. 6 in. = 114 in., its width at the water line must be

$$\frac{2504}{114} = 22 \text{ in.}$$

This width at the water line is secured by making the main 24 in. wide and of the shape shown. If a greater pressure had to be provided for, it would be necessary to make the main wider. By putting between each two lengths of main a partition extending 4 in. or 5 in. above the normal water line, and thus forming a separate water compartment for each bench, while leaving the gas-way open between the different lengths, the dip pipes on any bench that is idle can be given a heavier seal than

those that are working, and thus be made safe against a higher pressure.

Description of Firing and Cleaning Tools

42. Give a description, illustrated by sketches, of a full set of retort house firing and cleaning tools. Do not include in your answer tools for repairing, or coal and coke wagons.

Ans.

Furnace Tools

Secondary Bars: Made of 2½-inch and ⅝-inch refined iron, welded to a piece of 1⅛-inch round iron, with a 2-inch head for driving with a sledge hammer.

These bars are driven through the fire above the clinker line, and hold up the fuel while the ashes and clinker are removed from the lower part of the furnace.

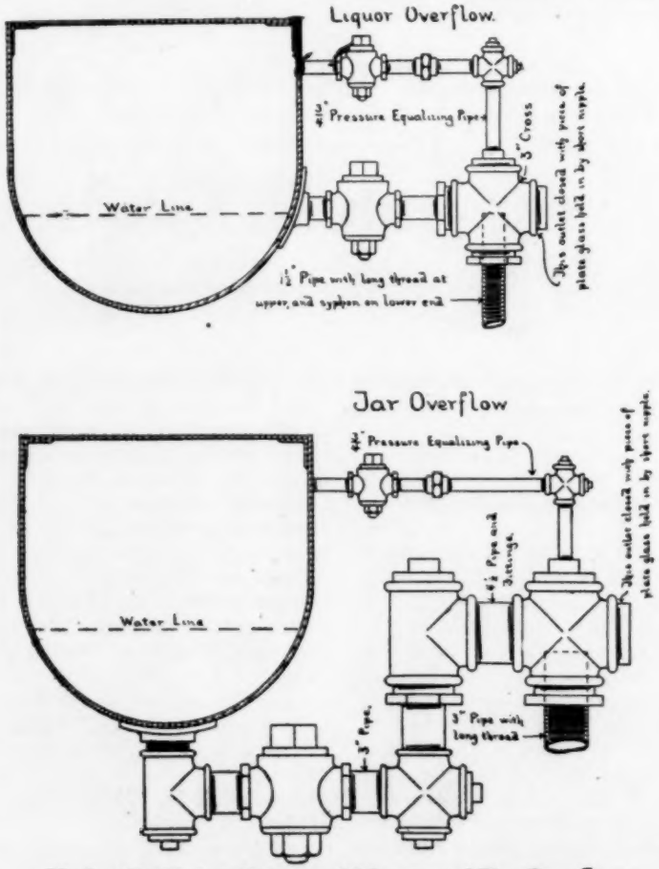
Used for raking out the ashes that get into the air ports during the cleaning of the fire.

Stoking Rake: Made of a piece of 3-inch x ¾-inch flat iron, 5 inches long, welded in center at right angles to a round rod, tapering from 1⅛-inches where welded to the flat iron to ⅞-inch at the eye handle, and 10 feet 6 inches long over all.

Used to push the coke well to the back of the furnace, immediately before and during the stoking draw, to secure an even fuel bed throughout the whole depth of the furnace.

Furnace Shute: Made of No. 11 B. W. G. iron, bent to proper shape, bound with ¼-inch x 1¼-inch flat iron, and provided with legs of ½-inch x 1½-inch flat iron.

It is used to catch the coke as it is drawn from the top and middle retorts on one side of a bench of sixes and causes it to slide into the charging opening of the furnace into which the lower part of the shute fits, the stoking rake being used to push the coke into the back of the furnace from this opening.



Hydraulic Main—Details of Liquor and Tar Overflow

Furnace Tools

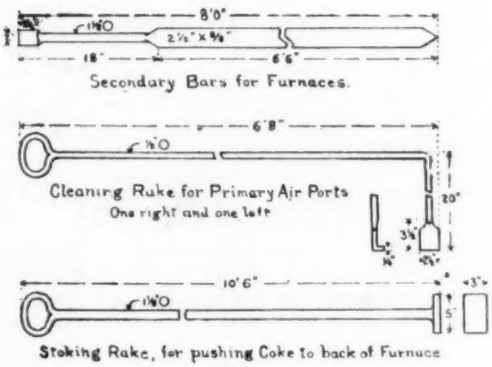
Cleaning Rakes for Primary Air Ports into Furnace: Made of ½-inch round iron, with an eye handle and a small rake end at right angles to main portion of handle. One right and one left for the two sides of the furnace.

Retort Tools

Drawing Rake: Head made of ¾-inch x 3-inch flat iron, 13 inches long, welded to handle at a point 1½

inches from the end. Handle 1¼-inch round iron, for 18 inches from head, 1-inch round for 8 feet more, and ⅞-inch round for the rest of the 14 feet 6 inches length. Eye on end of handle.

Used for drawing the coke out of retorts.



FURNACE TOOLS.

Carrying Stick: Made of ⅞-inch round machine steel, 3 feet 6 inches long over all, and with proper curve in middle to fit the bottom of the scoop.

Used for lifting and carrying front end of scoop when charging the retorts.

Scoops: Made of No. 14 B. W. G. soft steel, cut to size of sheets needed (15 inches x 105 inches), and pressed into shape in a press made of three 6-inch pipes, with necessary screw arrangements. Reinforced for 16 inches at the head with a piece taken from an old scoop. Strip of ⅜-inch x 1¼-inch iron riveted along outside at bottom to stiffen it. Head made of ½-inch soft steel, bent to proper shape on anvil, with a strengthening piece of ¾-inch steel put on around opening for handle. Handle 1½-inch round steel, upset on inside, and welded outside to a piece of round iron of same size tapering to ⅞-inch in 2 feet. Cross-bar of handle ⅞-inch round, and 2 feet over all.

Used for charging coal into retorts.

"Tippler": Made of ⅞-inch round iron, with eye handle and short hook on other end tapered down to ⅝-inch at point.

Used on charging floor for slacking off levers, opening lids of mouth-pieces, raising the flaps covering the openings through the floor into cellar, and every other purpose requiring the use of a hook.

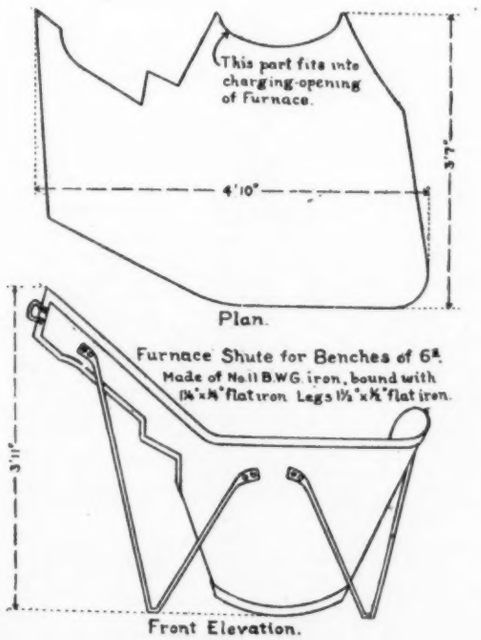
Leveling Rake: Made of a piece of ¾-inch x 3½-inch flat iron, cut to a semi-circle of 7 inches in diameter, welded at right angles to a handle 6 feet long, the first 12 inches of which is 1-inch round iron and the rest ¾-inch round, with an eye on end.

Used for leveling back the coal from the mouthpiece into retort after the charge, also for closing the lid and pushing in the lever.

Mouthpiece Bar: Made of ⅝-inch round iron, with eye handle and a chisel end of steel, dressed to an edge and tempered, 4 feet long.

Used to chip off the tar and pitch that accumulate on inside of mouthpiece lids.

Buck: Made of two 1-inch Ells, with side outlets, and the necessary 1-inch pipe to form four legs and a cross-piece.



Furnace Tools

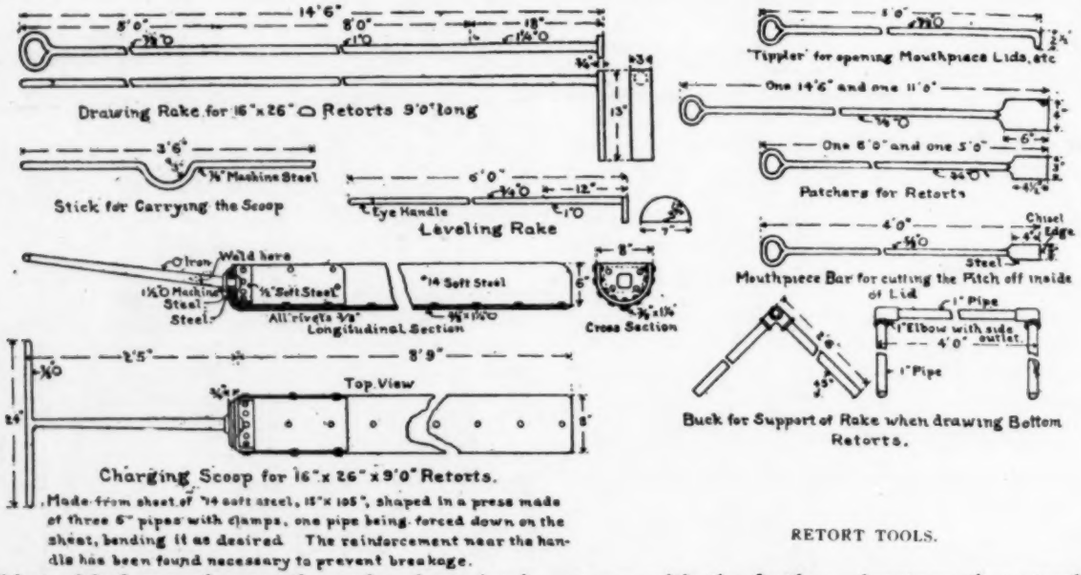
Used to support the drawing-rake and raise it above the bottom of the retort when drawing the bottom retorts, thus saving the firemen from much stooping when handling the rake in these retorts.

Patchers: Made, as shown on cut, off different size and length of handles. Made to hold fire clay and push it into the required place when patching retorts.

Stand-Pipe Tools

Cutter Head: Forged from 2-inch x 2-inch iron, slotted and drilled, as shown in drawing for the reception and fastening of cutting tool, and welded to a piece of 1-inch pipe of sufficient length to allow the cutter to reach well into the bend of the stand-pipes from the bottom retorts. Provided with an eye handle parallel to slot in head, so that the direction of the cutter is always known. One of these heads is also welded to a curved handle of ⅝-inch and ¾-inch round iron, similar to the auger handles. The cutting tools for use in these heads are made of ⅝-inch x 2½-inch steel, tempered on edges of the

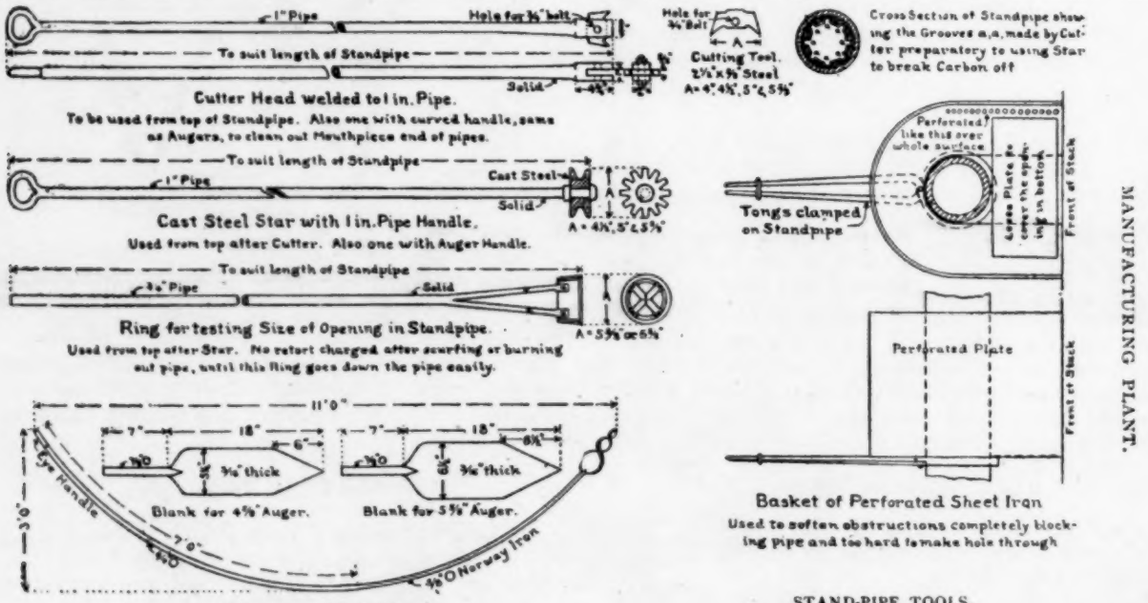
slope shown on drawing, in sizes increasing by ½-inch from 4 inches up to 5½ inches in extreme width.


Drawing Rake for 16"x26" ⌓ Retorts 9'0" long
Stick for Carrying the Scoop
Eye Handle
Leveling Rake
Weld here
Iron
Machine Steel
Soft Steel
No 14 Soft Steel
All rivets ⅜"
Longitudinal Section
Cross Section
Top View
Charging Scoop for 16"x 26" x 9'0" Retorts.
Made from sheet of No 14 soft steel, 15"x 105", shaped in a press made of three 6" pipes with clamps, one pipe being forced down on the sheet, bending it as desired. The reinforcement near the handle has been found necessary to prevent breakage.
"Tippler" for opening Mouthpiece Lids, etc
One 14'6" and one 11'0"
One 8'0" and one 5'0"
Patchers for Retorts
Mouthpiece Bar for cutting the Pitch off inside of Lid
Chisel Edge
Steel
1" Pipe
1" Elbow with side outlet
Buck for Support of Rake when drawing Bottom Retorts.

RETORT TOOLS.

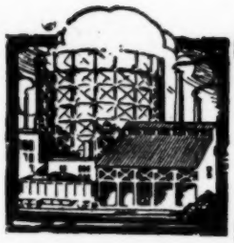
This tool is for use in case the carbon in a pipe is too hard to be cut away with other tools. By its use vertical grooves are cut in the carbon, as shown on the cut, almost out to the iron. Then the pipe is fired hard for an hour or so—that is, the flame from wood burnt in the retort is drawn up through the pipe, causing the carbon to crack away from the iron, so that it can be broken off in great lumps by means of the "Star," thus cleaning the pipe quickly, even when badly stopped owing to previous imperfect cleaning. The whole operation can be performed without the excessive jarring and subsequent loosening of joints that is necessary in doing the same work with an auger, with the further advantage that stand-pipes that cannot be cleaned with an auger are amenable to this treatment.

Star: Made from a piece of ½-inch steel plate, cut to a circle of the proper diameter, the teeth then being cut out, as shown, and tempered. It is not necessary to make this double, though it is shown so on the cut. This is fastened to a handle of 1-inch pipe, the length of which is determined by that of the longest stand-pipe. In two sizes for use from the top of pipes; also one provided with an auger handle for use from the charging floor.

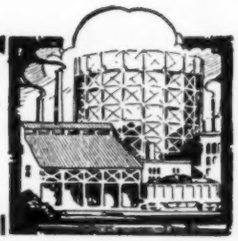

Cutter Head welded to 1 in. Pipe.
To be used from top of Standpipe. Also one with curved handle, same as Augers, to clean out Mouthpiece end of pipes.
Cast Steel Star with 1 in. Pipe Handle.
Used from top after Cutter. Also one with Auger Handle.
Ring for testing Size of Opening in Standpipe.
Used from top after Star. No retort charged after scurfing or burning out pipe, until this Ring goes down the pipe easily.
Cutting Tool.
Cross Section of Standpipe showing the Grooves a,a, made by Cutter preparatory to using Star to break Carbon off
Tongs clamped on Standpipe
Perforated Plate
Basket of Perforated Sheet Iron
Used to soften obstructions completely blocking pipe and too hard to make hole through
Blank for 4⅝" Auger.
Blank for 5⅝" Auger.
Auger and Auger Blanks.
The same style heads also fitted with pipe handles for use on top

STAND-PIPE TOOLS.

(Tenth Installment Next Week)



NEWS OF THE GAS INDUSTRY



Survey of Pacific Coast "Customer Ownership" Plan

Fourteen out of forty-five of the larger gas companies in the Pacific Coast and Rocky Mountain states are engaged in the public distribution of their stock, according to the results of a detailed survey conducted by George L. Myers, assistant to the president of the Pacific Power & Light Company and the Portland Gas & Coke Company.

The survey is the first attempt to assess the volume of the "customer-ownership" plan of financing on the Pacific coast. Detailed surveys have been made of the country at large, however.

Mr. Myers sent questionnaires to sixty-four of the larger gas companies on the western slope, a number of them also including in their operations the manufacture and sale of electricity. Detailed answers were received from forty-five of these concerns. Those engaged in the public sale of their stock reported that prior to the adoption of the plan there were 5,073 stockholders who had purchased 197,389 shares of their stock and that since the adoption of the plan the number of stockholders had been increased to 42,037 and the number of shares to 728,065. The number of stockholders is 6.3 times the number before general distribution was adopted and the number of shares 2.7 times as great.

"The average number of shares held by each stockholder prior to public sales was 34.6 and the average number of shares held by each stockholder who has purchased since is 14.6," says the survey's conclusion. "The average number of shares held by each stockholder has been reduced from 34.6 to 17.3. These statistics do not include the number of subscribers or those purchasing on time-payment plan. These subscribers number 9,827 and the shares subscribed 80,603. The average number of shares subscribed by each subscriber is 8.2. When the short period this plan has been in effect is taken into consideration, this seems to be a truly remarkable showing, a tendency to make holdings more widespread working toward a more constructive public sentiment and improved conditions of finance."

The small number of concerns at present engaged in this distribution of their stocks is "positive evidence that many companies yet remain to be 'sold' as to the benefits of this plan," the survey declares, but points out that the first-move in the West of this nature was undertaken late in the spring of 1914 by the Pacifific Gas & Electric Company, so that the number of concerns to embrace the idea within the ten-year period is relatively large.

The scope of the purchases of employees of the public utilities in the stock of their own concerns is indicated by the figures, which reveal that in the corporations included in the survey 20 per cent of the employees are stockholders and 26 per cent are subscribers. Thus 46 per cent of the employees are interested, either by the stock they now hold or that they have subscribed to. The average number of shares held per employee is 6.6 and the average number of shares subscribed to per employee is 3.7.

New Installations at La Salle, Ill.

Chicago, Ill.—Engineers of the Illinois Power and Light Corporation here are drafting plans for a new water gas set and high pressure mains that will be installed at La Salle, Ill., this year.

The plans call for an expenditure of $50,000 on the gas set and $30,000 for the mains.

It is hoped to have the plant in operation by July 1 and all the pipes laid in various parts of the city by fall.

3,491 Gas Furnaces Installed in Portland, Oregon, in 1923

According to the house organ of the Portland Gas & Coke Co., Portland, Oregon, 1923 was a very successful year for that company in selling gas furnaces. A total of 1,133 furnace installations was made during 1923, which was more than the entire total for all years prior to 1923.

In addition to the 2,139 installed by the gas company, there are, according to the house organ, 1,352 furnace installations of nine other makes, making a total of 3,491, exclusive of boiler installations for hot water or steam or radiators.

According to the same authority the house-heating send-out was almost 20 per cent of the entire year's send-out. In cubic feet it amounted to 574,509,600, as against 530,557,000 the year before.

Gas Reduction Effective March 1

Manchester, N. H.—The reduction of 10 cents per thousand cubic feet of gas that was announced by the Manchester Gas Company will become effective on bills rendered after March 1.

This reduction is the result of the new gas plant that was installed by the company recently in South Manchester. The new plant is most modern and is able to produce gas at a slightly lower cost of manufacturing.

With the new rate the first 10,000 cubic feet will cost $1.40 gross, the discount of 10 cents makes the net price $1.30. The 10 cents discount makes the net price of the next 20,000 cubic feet $1.20, the next 20,000, $1.10, and over 50,000 cubic feet, $1.00.

The service charge of 25 cents to $1.75 per meter each month is still in effect.

Columbia Gas & Electric Co. Issues Attractive Year Book

In its annual report, made public recently, the Columbia Gas & Electric Co. goes into considerably greater detail regarding its financing and operations than ever before. The report is really a handsomely bound year book of the Columbia properties, illustrated with maps and charts. The company's financial structure and its holdings in subsidiary and affiliated companeis are shown in complete form.

As had been indicated in a preliminary report issued last month, the Columbia company's earnings for 1923 were considerably the largest in its history. Gross earnings for the entire Columbia system were $39,648,833, and the net earnings after taxes, etc., were $17,148,375, with all inter-company transactions eliminated.

The proportion accruing to the Columbia company, from its own operations and from dividends of subsidiaries, was $12,331,554.92, and the net after all rentals and fixed charges was $6,403,959.64, equivalent to $4.27 a share on the 1,500,000 shares of no-par common stock outstanding. The present Columbia dividend rate is $2.60 per share annually.

The total capitalization of the Columbia system is $166,519,268, an increase of only $788,900 for the year, due to the fact that funds for the balance of capital expenditure were provided out of earnings. The total capitalization will undoubtedly increase during 1924, owing to important improvements and additions to the system already in progress. These are being financed to a considerable extent by the sale of preferred stock of the Union Gas & Electric Co. to its own customers in the Cincinnati circuit.

One of the most interesting features of the report is its analysis of the company's holdings in natural gas and oil fields in West Virginia and Kentucky. The claim has occasionally been made that Columbia's business is somewhat speculative because of the probable exhaustion of its acreage.

In refutation of this, President Gossler points out that the acreage at present in operation has been sufficient since 1898 to supply all requirements of continuous production without exhaustion, and that this acreage comprises only about 10 per cent of the system's total holdings, which amount in all to 1,048,534 acres, in a compact and accessible territory. At the same time the company is adequately organized to make the transition from natural gas to artificial gas, whenever it may become necessary, without loss of earning power.

"The Columbia system," says the report, "is protected to the fullest extent possible against any early large investment in artificial gas plants, through its enormous reserve of unoperated acreage, which is probably the largest and most valuable acreage of its kind known today. These reserves have been assembled over a period of twenty-five years, * * * and this acreage could not now be reproduced, regardless of time or money. * * * The system has a greater producing capacity now than at any time in its history."

Figures are also given showing the record of the company's retail business over a period of ten years, and these demonstrate that gas production and sales constitutes, from year to year, an unusually stable and uniform business, so that future developments can be predicted with a considerable degree of certainty, and the speculative element reduced to a minimum. The 1923 earnings, moreover, demonstrate that the high diversity factor of the Columbia system's business renders it largely independent of the unfavorable conditions in any particular industry.

The monthly report of earnings for Columbia, sent out simultaneously with the annual report, shows that in January the company made gross operating earnings of $2,188,544.47, a gain of $96,379.91, compared with the previous year; net earnings and income of $1,371,783.35, a gain of $33,837.98, and a net surplus after all deductions, for the month, of $868,920.10, a gain of $7,683.24.

Cities Service Company in January

The gross earnings of Cities Service Company for the twelve months ending with January 31, 1924, were $$16,605,498, as compared with $14,810,989 in the corresponding period of the preceding year, according to the monthly statement of earnings issued by the company. In the same period net earnings amounted to $16,100,937, as compared with $14,354,892 and net to common stock and reserves was $8,536,761, as compared with $7,032,612. This was the equivalent of $18.42 a share earned on the average amount of common stock outstanding. In the twelve months ending December 31, 1923, $18.28 a share was earned on the common stock. Preferred dividends were earned 2.71 times, as compared with 2.70 times in the twelve months ending December 31, 1923.

In January, gross earnings totalled $1,400,611, as compared with $1,397,676 in January, 1923. Net was $1,363,350 against $1,356,030 and net to common stock and reserves was $782,782 against $726,804 in January, 1923.

Rochester Gas & Electric Corporation Holds Election

Rochester, N. Y.—At the annual organization meeting of the directors of the Rochester Gas and Electric Corporation in New York, Louis S. Foulkes, vice-president and general manager of the Robeson-Rochester Corporation, was named a director of the company.

Mr. Foulkes was elected to fill a vacancy that has existed for some time on the board. No appointment was made to succeed Granger A. Hollister of Rochester, who died January 19, four days after he had been chosen as member of the directorate for 1924.

Robert M. Searle and Herman Russell will succeed themselves as president and as vice-president and general manager, respectively. Other officers elected were: W. N. Kernan of New York, vice-president; J. C. Collins of Rochester, secretary and general auditor; M. S. Barger of New York, treasurer and assistant secretary; H. L. Reichart of Rochester and H. G. Snelling of New York, assistant secretaries; E. C. Scobell of Rochester, auditor, and A. W. Stone of New York, transfer agent.

Robert A. Carter

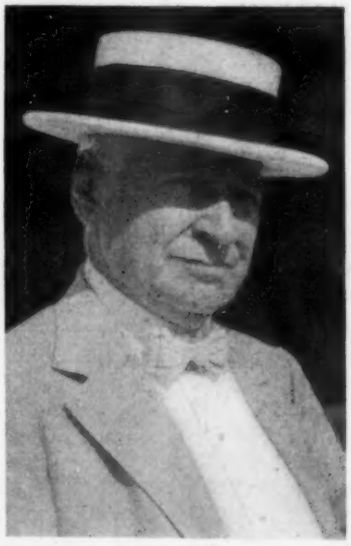
An Appreciation of His Work as a Gas Man

Mr. Robert A. Carter, a vice-president of the Consolidated Gas Company of New York, who died on February 4th, was a well known and prominent figure in the gas industry of the country. He had become particularly prominent in the Consolidated's rate cases of a few years ago, when the "eighty-cent" rate was successfully prosecuted by the company, and was in the midst of numerous rate cases at the time of his sudden death. Mr. Carter had long experience with accounts, and when the preparation of "cost prices" and all the other mathematical problems that are involved in contested "rate cases" was assigned or delegated to him, Mr. Carter proved thoroughly capable of coping with contending "expert accountants," statisticians and other opposing witnesses.

Mr. Carter had made "depreciation" one of his special studies. He had written much on that subject, and in the American Gas Association's Monthly for the current issue there is printed an address Mr. Carter delivered before the Metropolitan New York Section of the National Electric Light Association under the heading "The Fallacies of Depreciation Theories as Applied to Public Utility Properties."

Mr. Carter's views on Depreciation may be summarized as follows:

"Methods of measuring the depreciation of property of public utilities by the straight line method, the sinking fund method, the compound interest method, or any other method, or formula, are purely theoretical and do not result in facts. If the plant of a public utility is constantly maintained it does not depreciate. Considering the plant as a whole, its life is indeterminate and its value continues at value new because depreciation is predicated upon a limited term of useful service, while, as a matter of fact, the term of useful service of the well maintained plant is indeterminate. Retirements of plant items are due to obsolescence and inadequacy and not to wear and tear, except that small items wear out, which can be replaced, and movable parts wear out, which can also be replaced. These small replacements are chargeable to the repair account. The time of retirement of plant items for obsolescence and inadequacy cannot be foreseen. Plant items retired for this cause maintain their value in full until the time of retirement."



Robert A. Carter, Vice-President Consolidated Gas Co. of N. Y.

It may be said here that Mr. Carter's opinion was upheld by James G. Graham, Special Master of the Federal Court, in a decision rendered a few weeks ago in the New York and Queens Gas Company's case, and the decision was affirmed by Judge Hand in the United States District Court. Recently there have been many cases in which the validity of the reasoning of the Special Masters has been approved.

Plans New Building in Rochester

Rochester, N. Y.—The directors of the Rochester Gas and Electric Corporation will be asked to pass upon plans for a building to cost $250,000, and to be built in Front street near Andrews street, Herman Russell, vice-president of the lighting company, announced .

Mr. Russell said that the company plans to build a three-story structure of reinforced concrete, to be used as a storehouse and distributing center. A meter shop will occupy the third floor of the projected structure.

Gas Company Is Installing New Display Room

Pueblo, Col.—A large new display room and additional office space is being installed at the office of the Pueblo Gas & Fuel Company, 122 West Fifth street. A large part of the basement is to be used for this purpose and a stairway is being cut in the front of the main office. A second stairway leads to the basement from the rear of the main office.

The new room is to be used principally for display of house heating appliances and industrial gas equipment. A complete Thermostat house furnace will be installed and connected with gas, in order that prospective customers may see exactly how the furnace operates. A hotel range, automatic hot water storage tank, and many other gas appliances will be kept on display in the room. The automatic water heater is so arranged that the gas is automatically turned on when the water in the tank reaches a low temperature, and likewise turned off when it reaches a desired heat. It is considered one of the most perfect mechanical devices ever designed.

The new department will also contain a room in which the weekly meetings of the gas company salesmen will be held, and a number of desks along the sides of the room. The additional space will permit much more elaborate display of the appliances and equipment sold by the gas company and better office facilities for carrying on the growing business of the local public utility concern.

Southern California Gas Co. to Start Big Construction Program

Colton, Cal.—More than $300,000 is to be spent in Colton during the year 1924 by the Southern California Gas Company, according to an announcement which was made public by Mr. H. C. McAllister, the local manager. This is the minimum to be expended under plans which have already been approved, and work will commence immediately.

The principal item is for a new three million cubic foot gas holder to be erected here, which will be made a part of the present system for supplying gas to the cities of San Bernardino Valley. In the plant the boiler house is to be enlarged and a new 250-horsepower boiler will be installed with the necessary auxiliary pumps and connections.

In addition to these increased gas facilities which will be located in Colton, $185,000 has been approved for expenditure on mains, purchase of meters and making connections for individual consumers in the San Bernardino Valley. Of this sum more than $100,000 will be spent in the vicinity of Colton and San Bernardino.

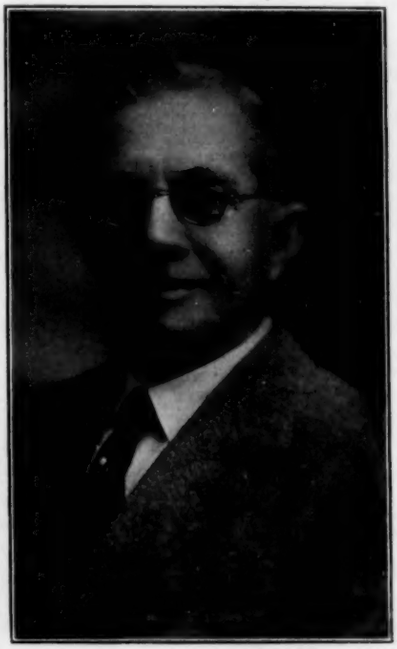
It is interesting to note that this plan for expansion during 1924 has been made after a year of exceptional activity on the part of the Southern California Gas Company in extending their lines and improving their equipment for serving gas. While most Eastern communities with a much larger population consider that they have made great growth if they have laid eight or nine miles of gas mains, or gained a few per cent in the number of consumers, the figures now available show that there was an increase in this valley during the last twelve months of 14 per cent in the number of consumers served with gas, and that more than twenty miles of mains were laid to take care of the increasing demands.

Seeks Permission to Issue Bonds

Atlanta, Ga.—Permission to issue bonds in the sum of $1,179,000 is asked of the Georgia Public Service Commission by the Georgia Railway and Power Company of Atlanta, to reimburse the company for expenditures the latter half of 1923 in extensions and improvements to the public utilities it operates in Atlanta, including the properties of the Atlanta Gas Light Co. The company's total investment amounted to nearly $1,500,000, and plans for the present year call for another large investment, to include considerable expansion and improvement of the gas company's properties.

Frank W. Bedard Fifty Years With Public Utility Company

"Let's do our work while the day is young—come down in the morning with a smile, hop into things which are to be done with a determination to finish them at once. Keep at the job until it is done.



Frank W. Bedard

"Then, if the after part of the day brings emergencies or leisure, we are ready for either of them. No fellow will have time for a ball game or even a game of golf in the afternoon who neglects the job in the forenoon, and everyone ought to be ambitious and energetic enough to have a hankering for some outdoor recreation."

Such is the philosophy of Frank W. Bedard, who has just rounded out fifty years of service with the utility company at Champaign, Ill., which is now a part of the Illinois Power and Light Corporation.

Mr. Bedard began his career in the public utility field in Central Illinois a half century ago as a gas man at La Salle, Ill. For several years he has been general manager of the properties at Champaign and is still in active service.

He has been honored numerous times by being placed on important committees of the various gas, electric and street railway associations.

Asks for Election on Franchise

Yankton, S. D.—A request for a special election on a renewal of the 20-year gas franchise of the Yankton Light and Heating Company was presented to the city commissioners by Charles Smith, manager. The present franchise expires July 1, 1925, Mr. Smith said. The company is facing the problem of an insufficient capacity, he said; it contemplates improvements and extensions that will cost $35,000 to bring the capacity up to meet the demand; but it does not want to put in the money and cannot borrow the money if it would with only a year of the life of the franchise yet to run.

The chief value of such a franchise as the company now has is to facilitate the borrowing of necessary funds, Mr. Smith told the commission. It is merely a permit, and gives no exclusive right; if it gives satisfactory service it may go on but if not, public opinion virtually nullifies it. It is necessary to have a special election on a franchise proposal. Mr. Smith was requested by the commission to have a franchise drawn up to present next week; it will be gone over, and any adjustments made that are desired; then it will be submitted to a vote. The gas man requested that this vote be taken in March, that he may go East and get money in time for some of their work before another winter.

The growth of the plant since Mr. Smith took charge in 1910 was outlined to the commission. The output has been increased from $6,639,000 cu. ft. to 18,804,100 cu. ft. in 1923. It will be necessary to increase the capacity from 100,000 feet to 250,000 feet, and this is the plan on which he is working.

Plan $1,000,000 Improvements in Plant of Gas Co.

Columbus, Ohio—The Sandusky Gas & Electric Co. was authorized by the Public Utilities Commission to issue bonds and stocks in the principal sum of $500,000 for treasury reimbursement, proposed additions, extensions and improvements to facilities.

The company will issue first refunding and improvement bonds at 5 per cent, mortgage bonds and 7 per cent preferred stock.

The commission found without oral testimony that the company had actually expended from its treasury $340,650.15 uncapitalized capital up to December 31, 1923, and needed treasury reimbursement.

The estimated cost of the improvements to facilities of the company to be made was announced at $357,000.

Improvements completed and those contemplated at the plant under the expenditure authorization will total more than $1,000,000, Major Wilcox advised.

"When we have finished we will have one of the most complete and up-to-date plants in the country," he continued. "Others may be larger, but none better. Not only will we be in a position to continue without interruption in case of any breakdown, but we will have sufficient reserve to take care of any emergency. We also will be in a position to accommodate any new enterprise that may locate here without further altering our plant."

Lawrence Gas Co. to Have New Home

Lawrence, Mass. — The Lawrence Gas Company has completed plans for a new four and perhaps five-story $150,000 office building to be located on the site of the present headquarters at the corner of Essex and Amesbury street.

Work on the new building will be started April 1, and it is expected that it will be finished and ready for occupancy by November 1, of this year.

The plans for the new structure were drawn by Architect George G. Adams of the George G. Adams and David M. Brown architect concern, with offices in the Bay State building.

The first story of the building will be made of concrete stone and the second story to the top will be made of red brick with concrete stone trimmings.

According to the plans, the first floor will be used for general office business with an adjoining salesroom for every kind of electrical and gas device.

In the basement will be another sales room, a model kitchen, men's room, filing rooms, locker rooms and a large vault 12½ feet by 20 feet. There will be elevator service and stairways from the bottom floor to the top story.

On the second floor in the front will be the agent's office, offices for the engineer, head of the gas and electric departments, stenographers, drafting and blue print rooms and toilet rooms.

The third floor will contain an office for the counting department and the east side of the building will contain an office for the billing machine clerk, offices for the purchasing agent and office manager, and a rest room for women.

The fourth floor will contain large salesrooms.

During the razing of the building headquarters will be at the gas company quarters on Appleton street.

Asks for Franchise to 1970

Winston-Salem, N. C.—L. M. Swink, representing the Winston-Salem Gas Company, recently presented to the board the matter of granting his company an extension of franchise to the year 1970. Mr. Swink pointed out that the old Winston and Salem Light and Gas Company, predecessors to the present company, was granted a franchise from the town of Winston on June 20, 1899, for thirty years, and on June 30, the same year, five more years were added. The town of Salem granted franchise for 40 years from March 1, 1900, and the company asks that these privileges be extended so that expiration will come on January 1, 1970.

Mr. Swink told of the plans of his company relative to the construction of a new plant, to be located on Bank street. The site for the plant was purchased from the city and payment was made, he said. To erect the plant as now considered by the officials of the gas company, Mr. Swink stated that an outlay of $300,000 will be necessary and to secure this fund bonds will have to be issued. It is for this reason that the extension of franchise is asked, for the reason that with one franchise expirinfi in 1934 and the other in 1940 there would be some inconvenience in selling the bonds.

The company anticipates the erection of a modern gas plant, it is stated. Mr. Swink told the members of the board that for the past five years his company has been putting in underground work in this city that has approximated $90,000 each year. He also recalled to the members that the local gas company was the only public utility to appear before the corporation commission and ask for a reduction of rates after the war and when the price of raw materials had declined.

Dollar Gas Confiscatory

New York—One dollar gas is confiscatory under a ruling made by the Appellate Division of the Supreme Court.

This decision was given in favor of the Bronx Gas & Electric Company, which supplies the Unionpoint section of the Bronx, and confirms a judgment which enjoined the Public Service Commission from enforcing the $1 rate. Patrons of the company are now paying $1.45, while in other sections of the Bronx, more thickly populated, the rate is $1.15 per thousand cubic feet.

A special rate of 75 cents a thousand cubic feet on gas supplied to the city was also held confiscatory.

Getting Ready for Increased Business

The Portland Gas Light Company of Portland, Me., placed order with the Gas Machinery Company of Cleveland, Ohio, for a new 8 ft. 6 in. dia. water gas generator and auxiliary equipment to be installed on their old 7 ft. 6 in. water gas set.

The capactiy as well as the efficiency of the old apparatus will be greatly increased by the addition of this new generator equipment, and the gas company will be provided with additional gas to take care of their increase in business.

Coal Authority Says Gas Stoves Beat Use of Anthracite

Hard coal, formerly almost the only fuel used for cooking in the East, is rapidly being displaced by gas wherever gas service is available, according to E. W. Parker, director of the Anthracite Bureau of Information. The reason for this, he says, lies in the greater convenience of gas.

"Anthracite," says Mr. Parker, "was at one time practically the only fuel used for cooking stoves and ranges in the New England and Middle Atlantic States, but that field where anthracite was once supreme has been invaded and is being taken, in the larger cities, by gas.

"There are few new houses built in cities having a gas supply that are not equipped with gas ranges. The gas companies look after that, and there is no gainsaying the fact that gas puts it all over coal unless the additional heat from the range is desired in cold weather, and we all know it is not desired in warm weather.

"It is true gas has elements of danger in its use, while anthracite is fool-proof under all circumstances, but the convenience—and we like convenient things—the escape from toting coal up from the basement and the freedom from removing the ashes, do appeal to the ordinary cook or housekeeper.

"One place is still left to the undisputed possession of the domestic sizes of anthracite, particularly stove and chestnut, and that is the small town and rural districts where gas is not available, unless the prices for these drive these consumers to the use of the cheaper bituminous coal and coke."

It is estimated that more than half the meals cooked throughout the United States are now cooked on gas ranges. Less than one-fifth of the nearly a billion cubic feet of gas used each day in this country is burned for illumination. The great bulk of the use is to furnish heat in gas ranges, heating devices in the homes, and in huge furnaces and kilns in factories.

Since 1910 there has been a large and steady increase in the use of manufactured gas in New York State. The percentage of increase in gas use has tallied almost exactly with the percentage of increase in price of domestic sizes of anthracite.

Gas Rates Approved by Public Service Commission

Albany, N. Y.—Saugerties Gas Light Company. Gas service supplied in village of Saugerties, N. Y. General revision made of rules and regulations governing service. Rate for gas through prepayment meter, 25c for each 120 cubic feet; minimum charge, 50c per month per meter. Effective March 1, 1924. Present prepayment meter rates are: To consumers averaging less than $6 per month, 25c per 120 cubic feet; and to consumers averaging over $6 per month, 25c per 140 cubic feet; minimum charge, 50c per month.

Consumers Gas & Coke Co. Purchases Florida Plant

Waycross, Ga.—R. B. Wagner, vice-president of the Consumers Gas and Coke Company of Waycross, has announced the purchase of the West Palm Beach (Fla.) Gas Company. This plant supplies West Palm Beach and a stretch of territory along the coast for ten miles north of Palm Beach and forty miles south, making this one of the largest companies of its kind, not only in Florida, but in the South.

E. W. Combs, of Waycross, has been named consulting engineer and will continue as manager of the gas plant here.

Work Rapidly Progressing on New Holder in Los Angeles

Los Angeles, Cal.—A new gas container with a capacity of 10,000,000 cubic feet will be ready for October 1 next to supply the entire northwest part of Los Angeles with additional gas, William Baurhyte, vice-president and general manager of the Los Angeles Gas & Electric Corporation, announced recently.

The 250-ton steel bottom of the container was lowered to its concrete base at Hollywood recently and the balance of the huge construction task will be rushed to completion.

The structure is the third of its kind to be built during the past few years by the Los Angeles Gas & Electric Corporation.

To Change Billing

Waukesha, Wis.—Following the lead of cities of larger size, the Wisconsin Gas & Electric Co. has undertaken to simplify their system of collections and make it easier for patrons to be served without delay, by introducing the divided method of issuing bills.

The city has been divided into two districts, the north and the south.

Patrons in the south district will receive their bills on the 15th of the month and the discount period for them will run until the 25th of each month. In the north district the bills will be rendered on the first of the month and the last discount day will be the 10th of the month.

Utility Boards Re-elect Heads

New Orleans, La.—Re-election of all officers of the New Orleans Public Service, Inc., and of the New Orleans Gas Light Company was announced following a meeting of the directors of the two companies.

Stockholders of the old New Orleans City Railway Company, an underlying company of the Public Service, also met and re-elected directors.

H. B. Flowers remains president of the New Orleans Public Service. The other officers are: A. L. Kampster, vice-president; A. B. Peterson, vice-president; Colonel Joseph H. De Grange, secretary; Henry Ferrandou, treasurer; A. B. McCord, general auditor; E. T. Colton assistant secretary and treasurer.

Officers of the Gas Light Company are the same except that J. D. O'Keefe is president.

Directors of the old New Orleans City Railway are D. D. Curran, S. P. Walmsley, J. D. O'Keefe, James P. Butler, W. P. Stauffer, A. B. Wheeler, R. W. Wilmot, Fred W. Evans and F. E. Gunter.

Baltimore Consolidated Gas Co. Had Best Record in History

Issue Year Book Giving Details of Operation

Baltimore, Md.—That 1923 was the best year in the history of the Consolidated Gas, Electric Light & Power Company of Baltimore will be brought out in the Year Book of the enterprise, to be issued next week. Operations of the utility during the year just closed will be set forth in detail, in popular form, so that they may be understood by the layman as well as by the financier and the utility expert.

Such a Year Book was issued in 1923 by the utility, being edited by A. W. Hawks. It gave a review of the financial and engineering accomplishments of the company in non-technical terms. Demand for a second book of this nature has resulted in the preparation of a similar review with which will also be circulated the annual report in its usual form. It is interesting to note that one customer in every twenty-five is a stockholder in the firm, in addition to which the number of small stockholders throughout America shows a large increase.

The record of the company for 1923 is epitomized as follows in the Year Book:

"The company gave the best service that it has ever given; served more customers than it ever served; sold more electricity than it ever sold; sold more gas than it ever sold; had fewer interruptions to its service than it ever had; found that more of its customers put its products to more uses than ever before, resulting in more of its customers benefiting by the low secondary rates for electricity and gas; did more construction in enlarging its plants than it ever did.

"It installed more cable and strung more wire than in any other year; laid more miles of gas mains and gas service pipes than in any other year; installed more meters for new customers than in any other year; burned less coal per kilowatt hour in the manufacture of electricity than in any other year; distributed gas over a larger area, gave more satisfactory service and had smaller loss from leakage than in any other year; underwent an exhaustive, searching investigation of all of its affairs and methods by the Public Service Commission of Maryland, the most exhaustive inquiry in the annals of the Commission.

"It had the value of its property passed on by the State, the Public Service Commission of Maryland finding 'that the security issues now outstanding represent par value in property' * * * and 'the present fair value of the company's property used and useful in the public service, as of December 31, 1922, to be at least $81,400,000.' Compiled both in letter and in spirit, with the reduction of rates ordered by the Public Service Commission of Maryland, a rate reduction which affected all classes of its customers from July 1 to December 31, 1923 (six months of the year). Paid more taxes to the city, county, State and Federal governments than in any other year, exceeding the total dividends paid during the year.

"It distributed its dividends to more people, and among more customers, than ever before, paying the usual 8 per cent on its common shares, the fixed rate of 8 per cent on its preferred A shares, the fixed rate of 7 per cent on its preferred B shares, and fixed interest charges on its bonded indebtedness.

"The company was enabled to accomplish these things through the steadfast service of its organization, to the training of which it gave more attention than in any other year; an organization whose enterprise, fidelity and watchfulness of the interests of the customers and the shareholders of the company make it possible for the management to report the best year in the history of the company."

Women Plan First State Wide Utility Study Classes

Milwaukee, Wis. — The public utilities women's educational committee, appointed by Harold L. Geisse, president of the Wisconsin Utilities Association, is completing plans to make Wisconsin the first state in the Union to organize women employees of electric, gas, street railway and telephone companies into a single state-wide study group, with local clubs in all companies or communities.

In other states where women's educational committees have been organized they have only included the women of electric companies, but in Wisconsin the effort will be made to make the movement more comprehensive, by including the women employed in all branches of the industry.

The committee in charge of this organization work consists of the Misses E. M. Westenhaver, Beloit Water, Gas & Electric Co., Beloit; Lillian Minch, Wisconsin Power, Light & Heat Co., Madison; Marjorie Alexander, Wisconsin Public Service Corporation, Milwaukee; Lucinda Gothe, Lake Superior District Power Co., Ashland, and Mrs. Grace Quandt, Wisconsin Valley Electric Company, Wausau.

One week after the organization meeting in Wisconsin, Miss Westenhaver, chairman, announces that the committee is working on a plan whereby it hopes every utility company in Wisconsin will have organized its women employees into study classes by the time of the annual convention of the Wisconsin Utilities Association in April.

New Equipment Installed at Binghamton

The Binghamton Gas Works, of Binghamton, N. Y., has placed order with the Gas Machinery Company of Cleveland, Ohio, for automatic control equipment for the 11 ft. water gas apparatus which the Gas Machinery Company installed a few years ago.

The order also includes hydraulic cylinders and operating equipment for the operation of the 9 ft. water gas set which will bring this set up to date.

Vicksburg Gas Co. Elects Officers

Vicksburg, Miss.—At the annual meeting of the stockholders of the Vicksburg Gas Company held recently in the office of the company, the following officers were elected: Neil Callahan, president; John A. Hennessey, vice-president; J. F. Jones, secretary and treasurer.

Current Market Prices

COALS (By Courtesy of Coal Age)

A. Bituminous.

(Spot prices, F. O. B., mines, net tons).

High Volatile, Eastern	Market	Price
Pool 54-64 (Gas Standard))	New York	$1.50 to $1.75
Pittsburgh screened gas	Pittsburgh	2.50 to 2.65
Pittsburgh gas, mine run	Pittsburgh	2.25 to 2.40
Kanawha lump	Columbus	2.50 to 2.75
Kanawha mine run	Columbus	1.50 to 1.75
West Virginia lump	Cincinnati	2.75 to 3.25
W. Virginia gas mine run	Cincinnati	1.50 to 1.75
Midwest		
Indiana 4th vein lump	Chicago	3.00 to 3.25
Indiana 4th vein mine run	Chicago	2.50 to 2.75
South and Southwest		
Big Seam lump	Birmingham	3.75 to 4.00
Big Seam mine run	Birmingham	1.75 to 1.85
Southeast Kentucky lump	Louisville	3.00 to 3.50
Southeast Kentucky mine run	Louisville	1.65 to 2.00

B. Anthracite.

(Spot prices F. O. B. mines, gross tons),

Market	Freight rates	Independent	Company
Egg New York	$2.34	$8.00 to $8.75	$8.75 to $9.25
Egg Philadelphia	2.39	8.50 to 10.00	8.75 to 9.25
Egg Chicago (net tons)	5.06	7.50 to 8.80	8.00 to 8.35

COKE (By Courtesy of Iron Trade Review).

Connellsville, furnace	$4.15 to $4.50
Wise County, furnace	4.50 to 5.75
Alabama, furnace	5.00 to 6.00
Foundry, Newark, N. J., del	10.91
Foundry, Chicago, ovens	12.50
Foundry, Boston, delivered	12.50
Foundry, St. Louis	12.50
Foundry, Granite City, Ill	12.50
Foundry, Alabama	5.00 to 6.50

PETROLEUM (By Courtesy of Oil, Paint & Drug Reporter)

(Prices at wells, per bbl.)

Pennsylvania—Ohio—West Virginia.	
Cabell, West Virginia	$2.05
Corning, Ohio	1.95
Lima	1.13
Pennsylvania	4.00 to 4.50
Wooster, Ohio	2.00
Indiana—Illinois.	
Illinois	1.92
Indiana	1.93
Oklahoma—Kansas.	
Healdton	.90
Mid-continent (low gravity)	1.00
Gulf Coast.	
Gulf Coast, Grade A	$1.65
Gulf Coast, Grade B	1.40

GAS OILS.

Gas Oil, Bayonne, bulk gal	5½c
Gas Oil (32-36) Illinois-Indiana, gal	6.13 to 6.38c
Gas Oil (32-36) Oklahoma, gal	3¾ to 4 c
Gas Oil (32-36) Gulf Coast, gal	4½ to 5 c

PIPE AND FITTINGS—CAST IRON GAS PIPE.

(By Courtesy Iron Trade Review.)

Four-inch, Chicago	$66.20 to $67.20
Six-inch and over, Chicago	62.20 to 63.20
Four-inch, Birmingham	57.00 to 58.00
Six-inch and over, Birmingham	53.00 to 54.00
Four-inch, New York	70.60 to 71.60
Six-inch and over, New York	65.60 to 66.60
Standard fittings, Birmingham, base	115.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20.

BY-PRODUCTS

(By Courtesy of Oil, Paint and Drug Reporter)

Ammonia aqua, 16 deg. drums lb	5 to 5¼c
Ammonia aqua, 20 deg. drums lb	6¼ to 7½c
Ammonia aqua, 26 deg. drums lb	6¾ to 7 c
Ammonia squa, anhydrous cylinder, lb	30 to 36 c
Ammonium sulphate, bulk F. O. B. Works, per 100 lbs	$2.85 to $2.95
Potash prussiate, yellow casks, lb	19¾ to 20 c
Potash prussiate, red casks, lb	45 to 48 c
Soda prussiate, yellow casks, lb	13 to 13½c
Soda sulphocyanide, barrels, lb	45 to 55 c

COAL TAR BASIC PRODUCTS.

(By Courtesy of Oil, Paint and Drug Reporter)

Benzol C. P. tanks, works, gal	25 to 30c
Benzol, drums, gal	30 to 35c
Benzol, 90% tanks, works, gal	23 to 28c
Benzol, 90% drums, gal	28 to 33c
Napthalene, flake, barrels, lb	6¼ to 7c
Napthalene, crushed bags, lb	5½ to 6c
Solvent Naphtha, water white works, gal	28c
Solvent Naphtha, drums, works, gal	33c
Solvent Naptha, Crude Tanks, works, gal	25c
Solvent Naphtha, drums, works, gal	30c
Toluene, C. P. tanks, works, gal	31c
Toluene C. P. drums, works, gal	36c

Buying of coal is moving along conservative lines. Consumers are using up their reserve stocks in place of buying new supplies. The recent soft coal agreement has resulted in a reduced demand for coal inasmuch as ample supplies are looked for in the future. Some producers are predicting a dull market until August and would not be surprised at an upset market during the last half of the year.

Petroleum prices are now practically stationary. The production of crude oil continues to increase. Extension of operations in cracking refineries has given some strength to the gas oil market through holding off the market oils, which are regarded somewhat as a by-product in refineries when the cracking stills are idle.

The market for by-products is improving, particularly in the case of benzol, quoted prices for which are firm.